
United States
Circuit Court of Appeals
For the Ninth Circuit.

FRANK P. SNOW and FRANK S. LIVINGSTON, Doing Business as
Partners Under the Name of SNOW MANUFACTURING COM-
PANY,

Appellants,

vs.

KELLAR-THOMASON COMPANY, a Corporation,

Appellee.

Transcript of Record.

Upon Appeal from the United States District Court
for the Southern District of California,
Southern Division.

Filed

JAN 25 1917

F. D. Monckton,
Clerk.

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[Clerk's Note: When deemed likely to be of an important nature, errors or doubtful matters appearing in the original certified record are printed literally in *italic*; and, likewise, cancelled matter appearing in the original certified record is printed and cancelled herein accordingly. When possible, an omission from the text is indicated by printing in *italic* the two words between which the omission seems to occur.]

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Citation.

UNITED STATES OF AMERICA,—ss.

The President of the United States to Kellar-Thomason Company, Greeting:

You are hereby cited and admonished to be and appear at a United States Circuit Court of Appeals for the Ninth Circuit, to be holden at the city of San Francisco, in the State of California, within thirty days from the date hereof, pursuant to an order allowing an appeal entered and of record in the clerk's office of the United States District Court for the Southern District of California, Southern Division, in suit in Equity No. B-65 therein, and wherein you are plaintiff and appellee, Frank P. Snow and Frank S. Livingston, doing business as partners under the name of Snow Manufacturing Company, are defendants, and appellants, to show cause, if any there be, why the decree of said Court made and entered May 25th, 1916, granting and allowing to plaintiffs an injunction against defendants as in said decree set forth should not be corrected, and why speedy justice should not be done to the parties in that behalf.

WITNESS, the Honorable OSCAR A. TRIPPET, United States District Judge for the Southern District of California, Southern Division, this 22d day of June, 1916.

OSCAR A. TRIPPET,
United States District Judge.

Received a copy of the foregoing Citation this 26th day of June, 1916.

CHARLES C. MONTGOMERY,
Solicitor for Plaintiff and Appellee. [5*]

[Endorsed]: No. B-65. United States District Court, Southern District of California, Southern Division. Kellar-Thomason Company, Plaintiff, vs. Frank P. Snow and Frank S. Livingston, Doing Business as Partners Under the Name of Snow Manufacturing Company, Defendants. In Equity. Citation. Filed June 26, 1916. Wm. M. Van Dyke, Clerk. By Chas. N. Williams, Deputy Clerk. [6]

Names and Addresses of Attorneys.

For Appellants:

FREDERICK S. LYON, Esq., 509 Merchants'
Trust Building, Los Angeles, California.

For Appellee:

CHARLES C. MONTGOMERY, Esq., 908
Security Building, Los Angeles, California.
[7]

*Page-number appearing at foot of page of original certified Transcript of Record.

*In the District Court of the United States of
America, in and for the Southern District of
California, Southern Division.*

No. B-65—IN EQUITY.

KELLAR-THOMASON COMPANY, a Corpora-
tion,

Complainant,

vs.

FRANK P. SNOW and FRANK S. LIVINGSTON,
Doing Business as Partners Under the Name
of SNOW MANUFACTURING COMPANY,
Defendants. [8]

*United States District Court, Southern District of
California, Southern Division.*

IN EQUITY.

KELLAR-THOMASON COMPANY, a Corpora-
tion,

Complainant,

vs.

FRANK P. SNOW & FRANK S. LIVINGSTON,
Doing Business as Partners Under the Name
of SNOW MANUFACTURING CO.,
Defendants.

Bill of Complaint.

To the Honorable the Judges of the District Court of
the United States, for the Ninth Circuit, in and
for the Southern District of California, Southern
Division:

The Kellar-Thomason Company, a corporation

organized and existing under and by virtue of the laws of the State of California, and having its principal place of business in the city of Los Angeles, county of Los Angeles, State of California, complainant, brings this its bill of complaint against Frank P. Snow and Frank S. Livingston, doing business as partners under the name of Snow Manufacturing Co., having its principal place of business at Los Angeles, county of Los Angeles, State of California, defendants, and thereupon complaining shows unto your Honors:

I.

That heretofore, to wit, prior to the 29th day of October, 1910, one Geo. E. Kellar of Los Angeles, California, was the original, first and sole inventor of a new and useful irrigating connection, not known or used by others before his invention or discovery thereof, or patented or described in any printed publication in the United States of America, or in [9] any foreign country before his invention or discovery thereof, or more than two years prior to his application for letters patent thereon, in the United States of America, or in public use or on sale in the United States of America for more than two years prior to the said application for letters patent therefor, and not abandoned.

II.

That the said Geo. E. Kellar so being, the original first and sole inventor of the said irrigating connection, heretofore, to wit, on the 29th day of October, 1910, made application in writing in due form of law to the Commissioner of Patents, in accordance with

the then existing laws of the United States, made and provided, and complied in all respects with the conditions and requirements of said laws, that thereafter such proceedings were duly and regularly had and taken in the matter of such application that, to wit, on the 30th day of January, 1912, letters patent of the United States of America, No. 1,016,159 and bearing date of the 30th day of January, 1912, were duly and regularly granted and issued by the Government of the United States to the said Geo. E. Kellar, whereby there was granted and secured to the said Geo. E. Kellar, his heirs and assigns for the full term of seventeen (17) years from and after the 30th day of January, 1912, the sole and exclusive right, liberty and privilege to make, use and vend the said invention throughout the United States of America and the Territories thereof; that the said letters patent were issued in due form of law under the seal of the United States Patent Office and duly signed by the Acting Commissioner of Patents, as will more fully and at large appear from the original letters patent or a duly certified copy thereof which are ready in court to be produced by your orator, and that prior to the grant, issuance and delivery of the said letters patent, all proceedings were had and taken which were required by law to be had and taken prior to the issuance of letters patent for new and [10] useful inventions.

III.

Your orator further shows unto your Honors that by an instrument in writing in due form of law, and signed and delivered by Geo. E. Kellar, the said Geo.

E. Kellar, did, on the 4th day of January, 1912, sell, assign and transfer unto the Kellar-Thomason Mfg. Company, all his right, title and interest in the said invention and in and to the said letters patent, issued therefor, together with all rights of action, claims or demands arising out of or accruing from said letters patent in any manner whatsoever; that said instrument in writing was duly and regularly recorded in the United States Patent Office. That thereafter by an instrument in writing in due form of law and signed and delivered by the Kellar-Thomason Manufacturing Company, the said Kellar-Thomason Mfg. Company did, on the 1st day of March, 1912, sell, assign and transfer unto the Kellar-Thomason Company all its right, title and interest in and to the said invention and unto the said letters patent, issued therefor, together with all rights of action, claims or demands arising out of or accruing from said letters patent in any manner whatsoever; and that your orator is now the sole and exclusive owner of said letters patent and of all rights thereunder.

IV.

That the said invention so set forth, described and claimed in and by the said letters patent No. 1,016,159 aforesaid is of great value and has been extensively practiced by your orator and that since the grant, issuance and delivery of the said letters patent, the said irrigating connections have gone into great and extensive use, and your orators have sold large [11] numbers thereof, and upon each and every one of the irrigating connections, so manufactured, used or sold by your orator, the word "patented," together with

the day and date of the issuance of said letters patent, to wit, 30th day of January, 1912, has been marked and stamped thereon thereby notifying the public of said letters patent; and the said defendant has been, long prior to the commencement of this suit, notified in writing of the grant, issuance and delivery of said letters patent No. 1,016,159, and of the rights of your orator thereunder, and demand has been made upon him to respect the said letters patent and not infringe thereon, but notwithstanding such notice, the defendant has continued to make, use and sell irrigating connections, embodying the said invention, as hereinafter more particularly set forth.

The patent No. 1,016,159 as aforesaid and referred to as a connection for irrigating device, is in fact a patent comprising and embracing the combination or the use of an annular flange as part of an irrigating valve or gate. Said annular flange being properly attached to the frame of said valve or gate and being of sufficient size to enable the user to place said flange over the end or at the end of a water or irrigating main and to leave a sufficient space between the inside of said flange and the outside of the end of said pipe to be filled with a cementitious filler, which cementitious filler serves the purpose of securely fastening or binding the water-gate or valve on or at the end of an irrigating pipe or water-main.

V.

And your orator further shows unto your Honors that the trade and public have generally respected

and acquiesced in the validity and scope of said letters patent No. 1,016,159, and the exclusive right of your orator therein and thereunder, and save and except for the infringement thereof by the defendant, as hereinafter set forth and your orators have had and enjoyed [12] the exclusive right, liberty and privilege since the 30th day of January, 1912, of manufacturing, using and selling the irrigating connection embodying and containing the invention described in, set forth and claimed in and by the said letters patent No. 1,016,159, and but for the wrongful and infringing acts of defendant as hereinafter set forth, your orator would now continue to enjoy the said exclusive rights and the same would be of great and incalculable benefit and advantage to your orator,

VI.

And your orator further shows that notwithstanding the premises, but well knowing the same, and without the license or consent of your orator, and in violation of said letters patent, and of your orator's rights thereunder, the defendant, the Snow Manufacturing Company has since the said 30th day of January, 1912, and within the year last past, and in the Southern District of California, to wit, in the county of Los Angeles, State of California, and elsewhere, manufactured and sold to others to be used, and is now making, using and selling to others to be used, irrigating water-valves or gates, provided with an annular flange, capable of being superimposed upon or so placed in connection with the end of water-mains or irrigating pipes, so as to provide

space for a cementitious filler and that said water-gates or valves as manufactured and sold by the defendant, were sold by the defendant, for the purpose of being so used in violation of the complainant's rights in the premises, and were so sold by the defendant knowing that the said gates or valves were to be so used in violation of complainant's rights and in infringement of the complainant's patent as aforesaid, and that said valves or gates as made by the defendant and sold by them, were made and sold with the intention that the same should be used by purchasers with a cementitious filler for attaching them to water-pipes and irrigating mains in a manner embodying [13] and embracing the complainant's patent and so intending that they should be so used in violation of the complainant's rights in the premises, and has infringed upon the exclusive rights secured to your orator by virtue of the said letters patent, and as set forth in the claim thereof which is numbered 1, and that the irrigating water-valves so made, used and sold by the defendant to be used were in violation of and are infringements upon said letters patent and each of said irrigating water-valves contains in it the said patented invention, and that although requested so to do, defendant refuses to cease and desist from the infringement aforesaid, and is now making, using and selling irrigating water-valves containing and embracing the said patented invention, and intends and threatens to continue so to do, and will continue so to do unless restrained and enjoined by this Court, and is realizing, as your orator is informed and believes, large gains, profits and ad-

vantages, the exact amount of which is not known to your orator, but upon information and belief your orator alleges the same to be the full sum of ten thousand (\$10,000) dollars, and your orator prays discovery of the said defendant, the exact number of irrigating water-valves made, used or sold by the defendant and the exact amount of profits and gains derived therefrom, by the defendant.

That for the wrongs and injuries herein complained of your orator has no plain, speedy or adequate remedy at law, and is without remedy save in a court of equity where matters of this kind are properly cognizable and relievable.

To the end, therefore, that the said defendant, may, if it can, show why your orator should not have the relief herein prayed, and may, according to the best and utmost of its knowledge, recollection, information and belief, but not under oath (an answer under oath being hereby expressly waived), [14] true, full direct and perfect answer make to all and singular the matters and things hereinbefore alleged, charged and set forth, and your orator prays that the said defendant may be enjoined and restrained, both provisionally and perpetually, from further infringement upon said letters patent and upon the invention set forth in said claim 1, and may be decreed to account for and pay unto your orator the profits and gains realized by defendant from and by reason of said infringement aforesaid, and the damages suffered by your orator by reason thereof, together with the costs and disbursements of this suit.

May it please your Honors to grant unto your

orator a Writ of Injunction, issuing out of and under the seal of this court, provisionally, and until the final hearing of this cause, enjoining and restraining the said Frank P. Snow and Frank S. Livingston, doing business as partners under the name of Snow Manufacturing Company, their agents, servants, employees, attorneys and assigns and each and every one of them from making, using and selling any irrigating water-valves containing or embracing the said invention patented in and by said letters patent and by said claim 1, thereof, and that upon the final hearing of this case said provisional injunction be made final and perpetual and that upon the final hearing of the case, a perpetual injunction be granted to your orator, and that your orator may have such other and further or different relief as to your Honors may seem proper and in accordance with equity and good conscience.

May it please your Honors to grant unto your orator the Writ of Subpoena of the United States, issuing out of and under the seal of this court, directed to the defendants, Frank P. Snow and Frank S. Livingston, doing business as partners [14½] under the name of Snow Manufacturing Company, commanding them by a certain day and under a certain penalty, to be and appear before this Honorable Court, then and there to answer this Bill of Complaint, and to stand to, abide by, and perform such other and further orders and decrees in the premises as to your Honors may seem fit.

And your orator will ever pray.

KELLAR-THOMASON COMPANY,
By ELMER O. THOMASON,
President.

GEO. A. MARTIN,
Solicitor for Complainant. [15]

United States of America,
Southern District of California,
Southern Division,—ss.
County of Los Angeles,
State of California,—ss.

E. O. Thomason, being first duly sworn, deposes and says: That he is the president of the Kellar-Thomason Company, the complainant in the above-entitled action; that he has read the foregoing Bill of Complaint and knows the contents thereof; that the same is true of his own knowledge, except as to such matters as are therein stated on information or belief, and as to such matters he believes it to be true.

(Signed) ELMER O. THOMASON,
President.

Subscribed and sworn to before me this 26th day of January, 1915.

[Notarial Seal]

(Signed) CHARLES C. MONTGOMERY,
Notary Public in and for the County of Los Angeles,
State of California.

[Endorsed]: No. B-65—Eqty. Dept. — In the United States District Court, Southern District of California, Southern Division. Kellar-Thomason Company, a Corporation, Plaintiff, vs. Frank P. Snow & Frank S. Livingston, Doing Business as

Partners Under the Name of Snow Mfg. Company,
Defendant. Bill of Complaint. Received Copy of
Within Complaint this — day of Jan., 1915. —
— Attorney for Defendants. Filed Jan. 28, 1915.
Wm. M. Van Dyke, Clerk. By Chas. N. Williams,
Deputy Clerk. George C. Martin, Lawyer, Suite
908, Security Building, Los Angeles, Cal., Attorney
for Complainant. [16]

*United States District Court, Southern District of
California, Southern Division.*

IN EQUITY—B-65.

KELLAR-THOMASON COMPANY, a Corpora-
tion,

Complainant,

vs.

FRANK P. SNOW & FRANK S. LIVINGSTON,
Doing Business as Partners Under the Name
of SNOW MANUFACTURING CO.,
Defendants.

Answer.

THE ANSWER OF FRANK P. SNOW & FRANK
S. LIVINGSTON, DOING BUSINESS AS
PARTNERS UNDER THE NAME OF
SNOW MANUFACTURING CO., TO THE
BILL OF COMPLAINT OF KELLAR-
THOMASON COMPANY, A CORPORA-
TION, COMPLAINANT.

To the Honorable, the Judges of the District Court
of the United States, in and for the Ninth Cir-
cuit, Southern District of California, Southern
Division.

These defendants now and at all times hereafter saving and reserving unto themselves all benefit and advantage of exceptions which can be had or taken to the manifold errors and uncertainties and other imperfections contained in the said bill of complaint, for answer thereto, or unto so much thereof as it is advised is material or necessary for it to make answer unto, answering says:

I.

Defendants deny that heretofore, to wit, prior to the 29th day of October, 1910, or any time prior thereto, George E. Kellar was the original, first and sole inventor of any new and useful irrigating connection; deny that the same was not known [17] or used by others, or patented or described in any printed publication in this or any foreign country before the alleged invention thereof by said George E. Kellar or that the same was not in public use or on sale in the United States for more than two years prior to the 29th day of October, 1910.

II.

Defendants admit that on October 29th, 1910, said George E. Kellar filed in the United States Patent Office an applicaiton, praying for the issuance to him of letters patent of the United States for an irrigating connection, but alleges that said application was falsely and fraudulently made and that the said George E. Kellar well knew, at the time of making said application and at the time said Geo. E. Kellar signed the specification forming a part of said application, and at the time said George E. Kellar made and swore to the oath forming a part of said application, that said alleged invention had been in

public use and had been on sale in the United States of America for more than two years prior to the date of making such oath and signing such specification, to wit, prior to October 29th, 1910; defendants admit that on January 30th, 1912, pretended letters patent of the United States No. 1,016,159, were issued and delivered to said George E. Kellar, but deny that said letters patent granted or secured to the said George E. Kellar, or his heirs or assigns, for the full term of seventeen (17) years from or after January 30th, 1912, or for any time whatever, the sole or exclusive or any right or liberty to make or use or to vend the said irrigating connection throughout the United States of America or the Territories thereof, or in any place whatever, and specifically deny that by the said pretended letters patent the alleged or any rights or privileges whatever were granted or secured to said George E. Kellar. [18]

III.

Defendants have no knowledge except as in said bill of complaint contained of the alleged assignments of the pretended invention and the pretended letters patent therefor, or the contents or scope of any such alleged assignments, and therefore require strict proof thereof as complainant may be advised.

IV.

Defendants deny that the subject matter of the said letters patent is of great or any other value or utility, but whether or not it has been extensively practiced by complainant or has gone into great or extensive use or has been sold in large numbers by the complainant, defendants have no knowledge and therefore require strict proof; defendants have no

knowledge except as in said bill or complaint contained whether or not the complainant has used or caused to be used upon any or all irrigating connections made by it, the word "patented" and the date of issuance of any letters patent and require such proof thereof as complainant may be advised; defendants deny that they have been notified in writing or otherwise of any rights of complainant as affecting these defendants under the said pleaded letters patent and deny that they have continued to or permitted others to continue to infringe any of the rights of the complainant alleged to be secured, to wit, by said pretended letters patent.

V.

Defendants deny that the trade or public have generally or at all respected or acquiesced in the validity and scope of the said letters patent 1,016,159 or the alleged exclusive or any right of complainant therein or thereunder; deny that complainant has had or enjoyed the exclusive right, liberty, and privilege since January 30th, 1912, or at any time of manufacturing, using and selling the irrigating connection embodying and containing the [19] alleged invention set forth and claimed in said pretended letters patent, either as alleged in said bill of complaint or otherwise or at all; deny that but for the alleged acts of this defendant, complainant would now continue to enjoy the alleged exclusive rights, and that the same would be of great or incalculable or any benefit or advantage to complainant.

VI.

Defendants deny that either in violation of said pretended letters patent or any right of the com-

plainant thereunder or otherwise or at all these defendants or any of them have within the last year past or at any time theretofore or there since, either in the Southern District of California, to wit, in the county of Los Angeles, State of California, or elsewhere made, used or sold to others to be used or are now making, using or selling to others to be used irrigating connections embodying, containing and embracing the alleged invention, described or claimed in said pretended letters patent 1,016,159, or embodying the construction as alleged of the irrigating connection, water-valve or gate; deny that any irrigating connections made, used or sold by these said defendants were or are an infringement upon said letters patent or contain in it the said alleged patented invention; deny that defendants have threatened so to do; deny that defendants are realizing any profits, gains or advantages whatsoever by reason of or rising out of any making, using or selling, or offer to sell or offer to make or offer to use any irrigating connections embodying, containing or embracing said alleged invention or as set forth in the claim 1 of said letters patent; deny that any act of these defendants have caused any damage, injury or loss to complainant or is depriving the complainant of any sums or profits whatever. [20]

VII.

Further answering defendants, upon information and belief say: that the letters patent 1,016,159 is invalid and void, because the thing patented or a substantial or material part thereof claimed therein as new, had long prior to the alleged invention of George E. Kellar, been patented or described or con-

tained in letters patent of the United States numbered as follows, to wit:

W. Hassall, 318,616.

T. & J. Galvin, 327, 945.

H. B. Nichols, 429,947.

H. H. Burritt, 515,514.

C. H. & E. H. Bentley, 827,409.

A. Wakefield, 608,239.

C. W. Seitz, 779,973.

P. F. Lyons, 853,515.

C. H. Moore, 879,399.

W. L. Jackson, 927,353.

H. E. Worley, 969,220.

J. H. Buttorff, 976,720.

W. B. Hughes, 1,000,173.

British Patent to Topham, 7442 of 1837.

And in prior publications as follows, to wit:

International Library of Technology, in the Los Angeles Public Library.

Vol. 72, copyright 1905, section 47, page 24, paragraph 48, and pages 44, 45, 46, 52 and 53, paragraphs 84, 85, 86, 87, 95 and 96, also in section 44, pages 9 and 10 and paragraphs 11, 12 and 13.

Vol. 98, copyright 1907, section 85, page 18, paragraph 22; also pages 33 and 34 and paragraphs 49 and 51 thereon. Also in section 88, pages 32 and 34 and paragraphs 32 and 35 thereon.

The catalogue of Crane Co. of Chicago, Ill., published at Chicago, and distributed among the branch houses of the Company and particularly, the Edition of 1902, pages 110, 111 and 118.

That in view of the state of the art at the time of the alleged invention of the said George E. Kellar and long before that time, the matters claimed in said letters patent 1,016,159, were not patentable inventions and were mere mechanical expedients requiring no invention and being within the domain of mere judgment and skill in the art; that the use of an annular flange attached to the frame of a valve or gate or other article to be connected with a pipe, such flange being of sufficient size to enable the user to [21] place said flange over the end or at the end of a water or irrigating main or any main or pipe so as to leave a sufficient space between the inside of said flange and the outside of the end of said pipe to be filled with a cementitious filler, which cementitious filler serves the purpose of securely fastening or binding the water-gate or valve or other article on or at the end of an irrigation pipe or water-main, or any pipe or main, as alleged in said bill of complaint was not a patentable invention and was merely a mechanical expedient requiring no invention and within the domain of mere judgment and skill in the art.

VIII.

Further answering these defendants, upon information and belief say: That said letters patent 1,016,159 is invalid and void because material and substantial parts of the things patented, and the said annular connection flange as alleged, has been used and known and were publically used and known by the following named persons, firms and corporations, and at the following places as set opposite their names, to wit:

Pomona Land & Water Co., at Pomona and elsewhere in Los Angeles County, California; C. K. Allen on his ranch at Lordsburg, California; Mr. A. W. Richards, at his ranch at Claremont, California; Mr. W. M. Baird, at his ranch at Olivet, Los Angeles County, California.

Further answering the defendants upon information and belief say: That the claim of the said letters patent is not a legitimate combination and is an aggregation and not patentable.

Further answering, defendants have good reason to believe and do believe, and therefore aver that the irrigating connection alleged by complainant to infringe the patent pleaded in said bill of complaint does not employ a circular or an annular flange as alleged capable of being superposed upon or so placed [22] in connection with the end of water-mains or irrigating pipes as to provide a curved or circular space for a cementitious filler, but upon information and belief avers that said alleged infringing irrigating connection is formed with an irregular, many sided, polygonal, angular flange or band, providing an irregular, many sided, polygonal, angular space around a water-main or pipe when applied thereto, whereby the cementitious or other filler, connecting means or binding agent used, obtains a stronger hold on the parts and more firmly and tenaciously binds the parts connected, together, than that afforded by the connection of the patent pleaded.

WHEREFORE, in view of the hereinbefore pleaded prior patents and prior public use, defend-

ants deny that they have infringed upon any exclusive rights secured to the complainant by virtue of said pleaded letters patent or that any attaching or connecting flange or other apparatus made by these defendants for use or sold by these defendants were or are infringements upon any rights secured to the complainant by said pretended letters patent.

That due proof of the aforesaid prior public use and certified copies of the above pleaded letters patents will be brought into court as your Honors may require.

WHEREFORE, defendants have fully answered complainant's said bill of complaint in so far as it is advised the same is material or necessary to be answered, deny that complainant is entitled to the relief prayed in said bill of complaint, or any part thereof, or any relief whatever, and prays to be hence dismissed with their reasonable costs and disbursements in this action taxed against the complainant.

CASSELL SEVERANCE,

Solicitor and of Counsel for Defendants. [23]

[Endorsed]: No. Eq.—B-65. United States District Court, Southern District of California, Southern Division. Kellar-Thomason Company, Plaintiff, vs. Frank P. Snow, et al., Defendant, Answer. Received copy of within answer this 31st day of March, 1915. Geo. A. Martin, Attorney for Complainant. Filed Mar. 31, 1915. Wm. M. Van Dyke, Clerk. R. S. Zimmerman, Deputy. Cassell Severance, Patent Attorney, Suite 803, Security Building, Los Angeles, Cal., Solicitor for Defendants. [24]

*United States District Court, Southern District of
California, Southern Division.*

IN EQUITY—B-65.

KELLAR-THOMASON COMPANY, a Corpora-
tion,

Complainant,

vs.

FRANK P. SNOW and FRANK S. LIVING-
STON, Doing Business as Partners Under the
Name of SNOW MANUFACTURING CO.,
Defendants.

Stipulation Re Letters Patent.

It is hereby stipulated and agreed by and between
the parties to the above-entitled suit by their respec-
tive solicitors:

I.

That the title to the letters patent, set forth and
alleged in the Bill of Complaint, is in complainant,
as alleged in the Bill of Complaint.

II.

That uncertified copies of letters patent furnished
by the United States Patent Office may be offered in
evidence with the same force and effect as though
duly certified copies, subject to correction by the
production of certified copies, should any error be
found in any such copies and subject to any other
objections as to competency, irrelevancy or materi-
ality or admissibility under the pleadings. [25]

III.

That the recitals of all United States letters patent

setting forth the day and date upon which the specification or applications for such letters patent was or were filed in the United States Patent office shall be accepted as *prima facie* proof of such filing date or dates.

IV.

That enlarged drawings copied from Figs. 11 and 13, on pages 32 and 24 of §88 of Vol. 98 of International Library of Technology, and from Fig. 6 and 22 on pages 24 and 45 of §47, Vol. 72, of said work and a copy of descriptive matter relating thereto and submitted as schedule A be offered in evidence with the same force and effect as though the work named had been brought into court.

V.

That a ring taken from an irrigation stand-pipe in Pomona and which for convenience may be called "The Pomona Ring," has been in public use for more than two years prior to the alleged invention of George E. Kellar and more than two years prior to his application for the patent in suit and may be offered in evidence as defendants exhibit "The Pomona Ring" and as proven to have been in such public use and as representative of other devices of the same kind used in Pomona by the Pomona Land and Water Company and elsewhere.

CHARLES C. MONTGOMERY,

Solicitor for Complainant.

CASSELL SEVERANCE,

Solicitor for Defendants.

The foregoing Stipulation is hereby approved and it is ordered accordingly.

District Judge. [26]

[Endorsed]: B-65—Eq. Kellar-Thomason Co., vs. Frank P. Snow et al. Stipulation as to Letters Patent & ct. Filed May 17, 1916. Wm. M. Van Dyke, Clerk. T. F. Green, Deputy. G. [27]

United States District Court, Southern District of California, Southern Division.

No. B-65—IN EQUITY.

KELLAR-THOMASON COMPANY, a Corporation,
Complainant,

vs.

FRANK P. SNOW & FRANK S. LIVINGSTON,
Doing Business as Partners Under the Name
of SNOW MANUFACTURING CO.,
Defendants.

Interlocutory Decree Sustaining Patent.

This cause having come on to be heard, upon the pleadings, proceedings and proofs herein filed on behalf of both parties, and after hearing Charles C. Montgomery, counsel for complainant, and Cassell Severance, Esq., counsel for defendants, and after due proceedings had, upon consideration, on motion of Charles C. Montgomery, Esq., solicitor and counsel for complainant, and due deliberation had, it is hereby

ORDERED, ADJUDGED and DECREED, as follows:

FIRST. That the letters patent of the United States of America, issued to George E. Kellar, assignor to Kellar-Thomason Manufacturing Company, his assignee, on the 30th day of January, 1912, for new and useful improvements in irrigating connections, No. 1,016,159 and assigned to the complainant Kellar-Thomason Company, a corporation, are good and valid in law, the claim of which is as follows:

“A gate having a plate with an opening through which water may flow, a pipe having its end abutting against said plate adjacent to said opening, said plate having an outwardly projecting flange, encircling the end of said pipe and forming an annular space between the end of said pipe and said flange, and a cementitious filler in said annular space securing said plate to said pipe.” [28]

SECOND. That the said George E. Kellar was the first true and original inventor of the invention and improvement described and claimed in said letters patent, and particularly recited in the claim thereof.

THIRD. That the complainant the Kellar-Thomason Company, a corporation duly organized and existing under and by virtue of the laws of the State of California, and having its principal place of business in the city of Los Angeles, county of Los Angeles, State of California, is the lawful owner of said letters patent, and is entitled to the exclusive rights in, to and under said letters patent, and in and to the invention and improvements secured thereby.

FOURTH. That the defendants Frank P. Snow and Frank S. Livingston, doing business as partners under the name of Snow Manufacturing Company, have infringed upon said letters patent, and the claim thereof, and upon the exclusive rights of the complainant under same, by manufacturing, using and vending to others to be used, irrigating connections, containing and embodying the improvements described in said letters patent and particularly claimed in the claim thereof.

FIFTH. That the complainant do recover of the defendants and each of them, the profits, gains, savings and advantages which the said defendants have derived, received or made since January 30th, 1912, by reason of the infringement of the exclusive rights under said letters patent, by any manufacture, use or sale, or inducement to any or either of said acts, of irrigating connections, containing and embodying the improvements described in said letters patent and claimed in the claim thereof, and that complainant do recover of said defendants and each of them any and all damages which the complainant has sustained since said date by reason of such infringement of its exclusive rights, by said defendants. [29]

SIXTH. And it is hereby referred to Force Parker, Esq., a Master of this court, who is hereby appointed to take, ascertain and state the number of infringing devices or parts thereof made, and the number sold by the said defendants in infringement of the claim of said letters patent, and the number of such infringing devices or parts thereof which the said defendants have on hand, and the gains, profits,

savings and advantages derived by the said defendants from and through said infringement, and to assess the damages thereby suffered by the said complainant and to report thereon to this court with all convenient speed.

And the said defendants, their officers, agents attorneys, clerks, servants, workmen, and employees are hereby directed and required to attend before the said Master from time to time as required by him, and to produce before him such books, papers, statements, exhibits, vouchers and documents as they may be directed by said Master to produce, and to submit to such oral or other examination as the Master may direct.

SEVENTH. That a perpetual injunction issue out of and under the seal of this court, directed to said defendants Frank P. Snow and Frank S. Livingston, doing business as partners under the name of Snow Manufacturing Company, its associates, officers, agents, attorneys, clerks, servants, workmen and employees, enjoining and restraining them and each of them from directly or indirectly making or causing to be made, using or causing to be used, advertising for sale, vending or causing to be sold in any manner, any articles, devices or parts thereof containing and employing or embodying the said invention and improvements described in said letters patent, No. 1,016,159, and claimed in the claim thereof and from counterfeiting or imitating the said invention and improvements or any part or parts thereof in any way, or from infringing upon or violating the said letters patent in any way whatsoever. [30]

EIGHTH. That the complainant do recover of the defendants and each of them, the costs charges, and disbursements of this suit to be taxed, and that the question of increase of damages and all further questions be reserved until the coming in of the Master's report.

WM. C. VAN FLEET,
United States District Judge.

O. K. as to form.

CASSELL SEVERANCE.

May 25, 1916.

Decree entered and recorded May 25, 1916.

WM. M. VAN DYKE,
Clerk.

By T. F. Green,
Deputy Clerk.

[Endorsed]: No. B-65. In Equity. In the United States District Court, Southern District of California, Southern Division. Kellar-Thomason Company, a Corporation, Plaintiff, vs. Frank P. Snow and Frank S. Livingston, et al., Defendant. Interlocutory Decree Sustaining Patent. Received Copy of the Within Interlocutory Decree this 24th Day of May, 1916. Cassell Severance, Attorney for Defendants. Filed May 25, 1916. Wm. M. Van Dyke, Clerk. By T. F. Green, Deputy Clerk. C. C. Montgomery, Lawyer, Suite 908 Security Building, Los Angeles, Cal., Attorney for Plaintiff. [31]

*United States District Court, Southern District of
California, Southern Division.*

IN EQUITY—No. B-65.

KELLAR-THOMASON COMPANY,

Plaintiff,

vs.

FRANK P. SNOW et al.,

Defendants.

Statement of Evidence Under Equity Rule 75.

Plaintiff offered in evidence copy of letters patent No. 1,016,159, dated January 30, 1912, as "Plaintiff's Exhibit 1."

It was stipulated that plaintiff was and is a corporation as alleged in the Bill of Complaint and that defendants Frank P. Snow and Frank S. Livingston were and are partners under the name Snow Manufacturing Company, doing business at Los Angeles, California.

Testimony of George E. Kellar, for Plaintiff.

GEORGE E. KELLAR, called on behalf of plaintiff, duly sworn, testifies:

"I am 38 years of age, reside in Covina, Cal., and a manufacturer of irrigation appliances for sixteen years past; I am the inventor named in 'Plaintiff's Exhibit 1.'

I began in the manufacture of concrete pipe in 1898 or 9, and that was for conducting water on my ranch, and at that time, there were very crude methods that I knew of for the controlling of water, and in dis-

(Testimony of George E. Kellar.)

tributing the water upon the land, so I began to see what I could do towards developing something to control the flow of water, and I have made [32] different devices, and from time to time, and at last, I developed something that I felt like was worth patenting, and made application and secured one patent as referred to here, and one we have before us. And in the construction of irrigation systems, I had a good deal of experience in the method of installing appliances for the control of water, and when I found something that did not answer the purpose, I would work on the device until I got something that would work; and all these years I have been studying and experimenting in different ways along that line.

When I took up the manufacture of gate-valves, the art of irrigation was in its primitive state with reference to concrete pipe conduits; for the control of water we had nothing but the screw gate and wooden caps and things like that for the control of water. We had for the delivery box * *. * we had screw gates, and for the outlets from the stand-pipes we had wooden caps * * * things like that was all that was in use at that time. Cement pipe or vitrified pipe had been used in place of open ditches in irrigation for perhaps eight or ten years, but we had nothing to convey the water, without reference to the distribution. It was the distribution that I was working with that caused me to develop what I have. I first devised a valve for the control of the flow of water through the stand-pipe, and also a gate with a slide and it was clamped on a frame to

(Testimony of George E. Kellar.)

control the water in the main conduit. That was first merely installed on the inside of a cut-off pipe or box, and without any flange. The first gate I made was without any flange. There was a demand for something to secure these gates to the end of the pipe. Many times the latter ended at a street, and it was desired—or at an arroyo, or ravine or something like that where they wanted to drain out the pipe. [33] Drain out the pipe, get it clear of sand, debris, or anything like that, or in winter time it was necessary to clear the pipe of water so it would not freeze, if it was used in cold countries, and there was nothing then, excepting putting up a box or concrete pipe vertically, and putting in the gate we had in use then, but I conceived the idea of attaching that gate by means of flange and this cementitious filler.

I placed the flange, to begin with, on the outside. I had no previous device where the flange was on the inside. I have read and understood the patent in suit No. 1,016,159. I knew the value of cement as a means of holding the two parts together, and I knew that by putting in—filling this space between the flange and pipe with this cementitious filler * * * I could hold the gate in place. That will hold to secure this flange to the end of the pipe. Now, that is the essence of the invention as I understand it, as I had in mind, was to get something that would secure this gate by means of the flange to the pipe, and the cement has such sticking qualities when it is in proper consistency to hold the two parts together, and cement will stick to concrete, and it will always

(Testimony of George E. Kellar.)

stick to iron or steel, so the holding properties was what I was after in that cementitious filler.

I have examined and understand the construction and operation of the devices manufactured by the plaintiff. The Complainant's Exhibit 2, a metal device, 'Complainant's Commercial Device' embodies the features of the patent in suit. In this we have cast the flange integral with the valve seat or frame or arch, as we *all* in common practice, which ends at right angles with this seat, so it would telescope the end of the pipe upon which it is to be secured, and by filling the space between the pipe that is inserted in [34] the valve and the valve, we secured the valve in place.

We make these in even sizes, from six inches to twenty-four inches; that is, the opening in the valve; the smallest is six inches and the largest is twenty-four. We make about a dozen sizes; in all these sizes the space between the pipe and the flange is practically the same. (We don't gauge the space in accordance with the size of the flange.) All we need is just enough to put in the cementitious filler.

(A device is produced marked Complainant's Exhibit, 'Defendant's Commercial Device' Exhibit 3, and it is stipulated that this device was manufactured and sold by defendant subsequent to the grant of the patent in suit). Referring to exhibit 3, the witness says:

As I see it, its construction was practically the same, it having a valve seat or frame upon which is a flange constructed of various sides, or octagonal, but

(Testimony of George E. Kellar.)

it is—its function is the same as the circular flange, and the means of attaching it to the stand-pipe is the same as with the circular flange, a cementitious filler is required, and the same characteristic of a cement is the same in each case.

Previous to my invention, we ourselves had no means of attaching a gate or valve to the end of the pipe on the outside. We did not attach it in that way at all, except by putting up a stand-pipe * * * a vertical pipe at the end of the pipe, and putting in the gate, which has the same function with reference to closing of the lateral as this does. It is just cemented into the opening of the vertical pipe; if we had tried to use our valve on the end of a pipe, we should have to use anchor bolts; that is, I mean the valve that we were manufacturing before we invented the flange. [35]

We notified the Snow Manufacturing Company to cease infringing our device. As I recall it, it was in the Spring of 1914 I requested them to quit manufacturing, which they promised to do. At that time the only difference between the valve they were manufacturing and exhibit 3 was it had a circular flange instead of an octagonal; we employ about fifty men, have employed more when business was better. We have about an acre and a half in factory site. The manufacture of the device in question is one of our main lines. Our best year, I believe, was in 1913, when we put out ten or fifteen thousand of them, which represents something like \$40,000 to \$50,000; these valves were used for controlling the flow of

(Testimony of George E. Kellar.)

water through the stand-pipes on alfalfa or grain irrigation, or where flooding is necessary, where a large quantity of water is required in any one place; in some orchards where the ground is sand like in the walnut section of this country, they do use this valve in that irrigation.

Exhibit 2, Complainant's Commercial Device and exhibit 3, Defendant's Commercial Device received in evidence.

On cross-examination, Mr. Kellar testifies:

The Complainant's Exhibit 2 is not exactly like the drawings of the patent in suit; the device disclosed in the patent being intended for closing off the end of the line; the one in the exhibit being primarily intended to be applied to the end of a stand-pipe. Both could be used either way. The one illustrated in the patent does not move in the same direction as the commercial device.

We didn't specify in the patent any way of applying the cement.

The flange employed by plaintiff is different from other bell flanges in use to secure articles to pipes. It is merely a straight flange without any grooves or lugs, or anything to assist the cement to hold other *that* its consistency. [36]

On redirect examination: Our term "gate" is distinguished from the valve in that the gate is used in a vertical position while the valve is horizontal. The gate is used to cut off the flow of the water through the main conduit underground, while the valve is used to close the water off from flowing out

(Testimony of George E. Kellar.)

through a stand-pipe; they could be reversed except as a matter of convenience; a gate could be put on top of the stand-pipe and a valve on the pipe as it lay horizontal. It has been done both ways on this work. If this valve was placed on the end of a pipe and had to be operated from the surface, this pipe being a horizontal pipe, all being under ground, it would be inconvenient to operate this valve. [37]

The patent covers merely the flange that is attached, it may be either a gate or a valve; it covers either a valve or a gate. It is my understanding that the patent merely covers the means of attaching a valve or gate to the end of a pipe. The other elements there were no novelty in. The only novelty we claim in the combination is the cementitious filler, together with the flange, the flange and cementitious filler and that flange may be on either a gate or a valve.

It was stipulated that the illustration of the gate is of one complainant's are manufacturing now in place of the one like that shown in the patent. The illustration from the catalog was marked exhibit "4" and offered in evidence.

The WITNESS.—This is a flange cast on the back of the gate, or it may be riveted to the back of the gate, and it circles the end of the pipe, and the annular space is filled with the cementitious filler.

The defendant Snow worked for our company as pattern maker and draftsman, beginning in 1909, I believe, and worked until the latter part of 1911 or forepart of 1912, as I remember, when we were manu-

(Testimony of George E. Kellar.)

facturing our present commercial device covered by our patent.

Recross-examination.

Prior to conceiving the invention I knew of the use of the bell and spigot type of connection with a cementitious filler.

Testimony of Elmer O. Thomason, for Plaintiff.

ELMER O. THOMASON, called on behalf of plaintiff, testifies:

"I am a manufacturer and orange grower, forty-nine years of age, living at Covina, Cal.

I was engaged for a number of years in the manufacture and installation of concrete pipe for irrigation purposes; [38] I have set a great many of these valves in place, and other kinds of valves, and other kinds of gates, or gate valves. I have had a good deal of experience in the manufacture—quite a number of the articles manufactured by the Kellar-Thomason Company, were my inventions; some of them were; not this one.

Well, we have had a good many inventions and obtained patents on a large number of them I think some seventeen. I have had a good deal of experience in talking with patent solicitors and attorneys, and naturally I have learned considerable about it.

I have read and understand the patent in suit. The essential feature in this patent is the flange as the means of connecting the valve or gate. I think in this case it is what we term a "gate," but there is no essential difference between a valve and gate, ex-

(Testimony of Elmer O. Thomason.)

cept as has been explained. The essential feature in this patent is the flange as the means of attaching the valve or gate to the end of a concrete pipe, or other kind of pipe; it might be vitrified,—the flange allowing the annular space between the end of the pipe and the inside of this flange to be filled with a cementitious filler.

Prior to the time that we used this, they were securing valves and gates by means of clamps, a band clamped around the outside of the pipe with a bolt running from the gate to the band. Anchor bolts and bolts—clamps and bolts and anchor bolts, and such things as that was the usual means of securing a valve or gate to the end of a pipe when it was put directly on the end of the pipe. Now, sometimes a valve or gate was placed down in a concrete box, and in such an instance as that, it would be secured a good deal the same as you would secure a pane of glass in a window, by putting putty around it; that is when there was an abutment of soil it could be placed against, but we needed this means of securing this directly to the end of a pipe where there were no [39] *no* such means of securing it. Now, in such cases as that, prior to this invention they used clamps and bolts to do it with; they used a little cement to prevent leakage, but this invention was the first use of this kind for securing gates and valves to the end of the pipe, so far as I have ever seen or heard of; prior to this invention, it was well known to secure the joints or pipes together by babbitted metal or other fillers. These joints were not end joints.

(Testimony of Elmer O. Thomason.)

When an end joint was used, that babbitt was merely to caulk the joints, sometimes they used oakum or such things as that.

When we first devised this plan of securing a valve to the end of a pipe, we offered it for sale to a man engaged in pipe making. He said, "That won't stay on"; it would be blown off by pressure; he said, "That cement will not adhere to it; that infinitesimal amount of shrinkage will not let it go on." I suggested it to one of the best cement men here in Los Angeles; he is here now; you would know him. He said, "You can't secure it in that way." I said, "I want to demonstrate that to you." I did. And he was surprised to find an iron valve could be secured to the end of a cement pipe without any anchors or bolts or clamps, or anything of that sort. We found that none of the men engaged in the use of cement—engaged in the manufacture of pipe that believed this could be done; I have had numbers of them tell me it couldn't be done; the discovery was made rather accidentally.

I went up to Colorado to the Irrigation Congress in 1909, and I saw a number of gates there secured to the end of a pipe, but in every instance they were secured by anchors or clamps, generally by a collar clamped around the pipe, and then the bolt running from the collar to the gate at the end of the pipe, and I came home and said to Mr. Kellar, "We need some better means of fastening a gate to the end of a pipe." And we were talking over a number of things and while we were [40] talking, it just

(Testimony of Elmer O. Thomason.)

seemed to come as an inspiration. He said, "Well, we will put a flange on the back of the gate," and as soon as he mentioned it I said, "Certainly, that is the thing to do." And we knew the possibility of that by this: That we knew that iron and cement expand and contract together; that is the reason that it is possible to have reinforced concrete; they expand and contract together. One not knowing that would have supposed that the iron would have become heated and would crack away from it; in many cases I know that the pipe joints were furrowed with some sort of an instrument or the material was plastic so as to give the cement a chance to get hold of it; I don't know it was in all cases. An instrument of some kind had been run around it to make a number of furrows in the ends of the pipes to make a roughness so the cement could get hold of it. I have seen water pipe with a bell end and a spigot end put together and cemented around, but they were always laid on the ground and held by the earth, or if at the end of the line always anchored by earth behind it, or concrete or rock, or something behind it, so there was no chance for it to go off; I have never seen it used in this manner.

Many years prior to this invention I knew of clay water-pipes filled with cement between the flange and the end of the other pipe; before this invention the alfalfa valves were constructed differently; there was no flange here, the bead or the seat of the valve was on edge. The lower edge of that went down into the bevel end of a concrete pipe, and a little cement

(Testimony of Elmer O. Thomason.)

was put around it, but they gave a good deal of trouble. It would blow off, so that an anchor bolt in the shape of an "S" would be fastened to this arch, and this attached to the side of the pipe down below cemented in to hold it in place; prior to this invention there was nothing, so far as anything [41] previously used was concerned that suggested to me as a practical manufacturer that this flange could be put on the outside, encircling the end of the pipe, with an annular space between, and held there by a cementitious filler. We had never seen anything like this up to the time we used it. There was a demand for such a thing.

It was necessary to have some means of closing the pipe end of a stand-pipe in a field to shut the water off, and then it could be used to open it to let it flow again, and we used the other kinds of valves I have just described, but it gave a great deal of trouble, in being forced off by water pressure, in being on end in that manner, so there was a good deal of demand.

These valves will stand more than the ordinary concrete pipe will stand or clay pipe. Perhaps ordinarily they are called upon to stand five or six pounds to the square inch, ten or twelve feet pressure, but we have known them to be used under much greater pressure than that, but never heard of one being blown off. Concrete men have told me you can't get them off without breaking the pipe.

The use of this invention grew pretty rapidly. I think half of our business has been in this kind of valve, or using this flange; perhaps \$50,000 worth a year.

(Testimony of Elmer O. Thomason.)

The advantage in putting a flange on the outside of the pipe over that of putting it on the inside of the pipe is, you can have the opening the full size of the channel through the pipe so you don't cut down the capacity of your pipe. Prior to the use of this we had to get on the inside of the pipe so that our opening was smaller than the opening of the pipe. This cut down the discharge, perhaps half an inch on an eight inch pipe. [42]

The function that a stand-pipe performs in irrigation is that of a hydrant. The horizontal line runs along, perhaps, a foot underground; that is the top of it, and then there is a stand-pipe, which is a short section generally coming up.

After the invention we began the manufacture of the device in its first form, we manufactured it right away; I think it was in—well, you asked me how long—pretty soon.

On cross-examination, the witness stated: "The concrete pipe was made, of course, first, and there was an established bevel that was in common use, which couldn't very well be changed; that was not very deep. It was rather shallow. The valve that we made before this had to set down in that beveled end of the pipe. There was not much space there—that is, to get much of a hold on this valve—or hold on this valve, and without going to work and changing the whole construction of concrete pipe, you couldn't improve that, except by getting on the outside rather than on the inside. The cement engaged in the shallow beveled end of the pipe, and the lower

(Testimony of Elmer O. Thomason.)

end of this valve. The device had no external flange at the periphery, that is, no flange to go outside of the pipe; the chief difference then in the prior device was the providing of an outside pipe including flange on the frame of our valve, otherwise they were the same. They were made sufficiently large to form an annular space to receive a cementitious filler. The flange in that device was similiar in function to the flange of the ordinary bell and spigot joint on the pipe, either tile or iron the difference in this, that it was used to cement—to secure a valve to the end of a pipe, not in a continuous line, it formed the annular space around the end of the pipe, just the same, and the cementitious filler was used between the two identically the same way; the function of this is to secure the valve to the end of the pipe and to make a water-tight joint. The length [43] or degree of flange is a matter of judgment. In some cases the depth is greater than others. It was a matter of experiment when we started in with this width of flange. We did not need any other securing means beyond cement. I have known them to try to take them off, and in every case they either had to break the valve or break the pipe to get them off; they always stayed.

On Redirect Examination.

A number of concrete pipe makers did use an “S” anchor rod attaching on the bottom of this arch, and the other end of it being secured in the inside of the pipe down perhaps a foot or so. I never used such anchor rods. I always set them very

(Testimony of Elmer O. Thomason.)

carefully and covered up the stand-pipe with a wet sack or wet earth, and by being very careful I was successful generally in getting them to stay on, but there was a common complaint that they would blow off. We took great care to set them in the old way. We buried the ring in the cement filler when it was put on the inside of the old type of valve; we put it down into the beveled end of the flared end of the pipe, and with the little cement as I have described it, like it was in glass. There was no room for very much. There was just such a slight raise on the outside of the flange. It was to give us a little better chance to secure it to the end of the pipe. There was no bead on the outer flange, none on this at all. This really—this has a little bit of flare to it. The flare is merely to enable the moulder in the foundry to draw it out of the sand. The flare on the outer flange has this effect on the ease and cheapness of manufacture, we don't have to use any core, only just the green sand proposition.

Recross-examination.

The cement joint between our gate and the pipe is [44] found to prevent blowing off and holding heavy pressures. I think the same power to hold pressures would result from the ordinary bell and spigot joint, but no one knew it until we discovered it. The fact is that the ordinary bell and spigot joint is not called for the purpose, to do that. It is laid on the ground in a manner that if it should fall apart, it should have to pull the pipe through the earth, while the skin friction of the earth is suf-

(Testimony of Elmer O. Thomason.)

ficient to prevent that. Now, if there is an end joint, that is always anchored with earth or rock or cement; in laying our pipe-lines—the end joint, we always provided an abutment there for it to come against, so that function was never performed in the bell and spigot pipe joint; it doesn't come on the end as this does; it is in the line; it couldn't get out if it wanted to. The cement in that case merely serves to make it water-tight. The earth is sufficient to hold it.

A flange like this will, if filled with cement around the end of a pipe, will hold it there, without roughening, or other means, without anything else at all.

A have never seen an iron pipe with a bell end receive the spigot end of another pipe filled in with cement.

Redirect Examination.

There is no advantage in defendant's device there by reason of its having many sides. That wouldn't help it any. This is sufficient. I never knew one of these to blow off; it never needs anything more than just that.

Testimony of Ernest L. Rogers, for Plaintiff.

ERNEST L. ROGERS, witness produced on behalf of plaintiff, testifies:

I am a resident of Los Angeles, a clerk in the employ of plaintiff, and in the early part of 1914, bought the alfalfa [45] valve marked exhibit 5 from the defendants for \$2.14. This was manufactured by the defendants.

(Exhibit 5 offered in evidence.)

Testimony of George C. Martin, for Plaintiff.

GEORGE C. MARTIN, called on behalf of plaintiff, testifies:

“I am forty years of age; reside in Manhattan Beach, a suburb or town adjacent to Los Angeles; at the present time I am manager for Kellar-Thomason Company; prior thereto, since 1899, I practiced law; most of which time was spent in the practice of patent law, or a great deal of my time; that is, I never tried any patent case alone; I took part in the trial of cases and have several cases pending in this court; gave opinions on patents; acted as counsel in patent cases here and elsewhere, and devoted myself to the study of patent law to a very considerable extent; I have invented a number of devices, and I expect that is what started me in the study of patents. I have counselled with Mr. Severance in many cases, or he counselled with me.

I have studied the patent in suit; the claim covers a gate having an opening through which water may flow, a pipe having its end abutting against said plate, adjacent to said opening, said plate having an outwardly projecting flange encircling the end of said pipe and forming an annular space between the end of said pipe and said flange, and a cementitious filler securing said plate to said pipe. The patent elsewhere states that it refers to attachments for the ends of pipe, and for regulation of water flow; both gates and valves. As I understand this patent it is a combination of a flange [46] and pipe end and opening, and means of closing the opening,

(Testimony of George C. Martin.)

and the cementitious filler between the flange and the outside end of a pipe, regardless of whether the remaining parts providing the closure is there, are for what is known as a lid valve, or a slide to the gate, the only difference being one is usually opened and closed with a lid, described so because its motion is to and from the seat, so-called, and a slide, whose motion is at right angles to the opening; that is arranged simply for a matter of convenience. The patent therefore simply covers the combination of a cementitious filler with a flange and the end of a pipe and the opening, and a convenient means of closing it. In other words, it has a means for attaching, and this cementitious substance has a means for attaching the valve and a gate where one—where the gate or valve ends the line.

I have heard the other testimony, and I have examined of course the prior art. I know how cement pipes and vitrified pipes and steel pipes have for many years been fastened together with hemp, with lead pounded in cold or poured in hot, with tar, and with asphaltum; with any other substance which could be used by being forced into a caulk joint. I have seen pipes laid that have been placed for many hundred—several thousand years, in fact, with what I presume was cement, called plaster, although I think the early people knew how to make cement.

Cement itself is not new as a means of forming a closure between a bell and a spigot end in a pipe. The newness in this invention resides in the fact

(Testimony of George C. Martin.)

that there is one element lacking here, as compared with the elements found in a pipe-line; that is, there is—where two pipes are laid together, or where a number of pipes are laid together, their disposition is to remain in place. The force of water driven through those pipes will never have any effect to move one longitudinally relative [47] to the other, unless the end is closed up. In the use for which this patent is provided, the disposition of the water or of the pressure of the water is to force the two elements apart. The cement in here, it was discovered, had the effect of not only making a water-tight joint, as in the case in vitrified or clay pipe, but it also has the additional effect or property of holding the valve or gate against other high pressures. I have known of a gate like this holding a pressure of 2500 pounds without being blown off; that is a maximum pressure on the end of the pipe, a pressure of 2500 pounds.

Now, in all reinforced concrete work, it has been discovered that concrete has the characteristic of adhering to iron. Now, that property, to understand, for instance, of we were taking pieces of cement and plaster it against this iron and let it stay, it will stick there just like glue; you have got to chip it off. You can't pull it off, so there is an adhesion there besides that roughness of surface; there is some affinity between the two; the two expand and contract together; under the exposure of heat or cold. Of course, if that were the case, they would break apart if heated. In the art, in one of the *case* cited by

(Testimony of George C. Martin.)

Mr. Severance, where cement was used or shown as a filler in connection with some other things, with the bead appearing on that pipe, the patentee in that case stated it would make a water-tight joint and would be good for practical use, where it was not exposed to any pressure. It was not conceived by people that cement would make a joint which could withstand pressure. I don't remember that patent, but I have been studying it; it was one of your citations.

I have examined and understand the construction and operation of irrigating connections manufactured and sold by plaintiff.

Referring to the patent in suit, I find in the patent [48] the elements in the claim are as follows: A gate having a plate with an opening through which the water may flow. In the art of irrigation appliances it sometimes requires a little practice to distinguish between a gate and a valve, the distinction usually being, as I explained this morning, is this, that the valve is one where the lid lifts up and down and the gate where the lid slides. Their uses, however, are analogous, except for a matter of convenience. Usually the gate has a handle and the valve is screwed by either nut or a bolt, with a tee in place of that nut. I have before me the exhibit which you describe, which is described in the commercial business as a valve. And that valve, the part which *is* described in the claim of the patent as the plate, is the part between the inner flange on the top of the valve and the outer flange

(Testimony of George C. Martin.)

on the bottom of the valve. The opening through which water may flow is the opening which is normally closed by the lid when the lid is shut, and may be opened, and is an opening in the plate through which water may flow.

I might say, it may be noticed on this alfalfa valve there is an outside flange here, or a rim that is used as a seat for what is called a hydrant, which has a sort of tin reservoir bolted down on the bead by bolts which come under the flange—the lower flange of the valve. Then that hydrant—that tin cylindrical device has a little spout, to which is attached a spout of any convenient length so a man may irrigate from a surface flow. I have before me a piece of pipe, but the claim of the patent refers to a pipe as an ordinary cement, vitreous—vitrified clay or an iron pipe. They are all used in the art, but particularly the cement pipe, the cement pipe having an end abutting against said plate. That would mean [49] having an end in here against the plate. (Indicating.) This is the bottom side of the plate on this side adjacent to said opening. In fact, it is usually put on so that the opening in the pipe is concentric with the opening of the valve, said plate having an outwardly projecting flange encircling the edge of said pipe and forming an annular space between the end of said pipe and said flange, so that when the pipe is set in here, there is a space—an annular space, as it is described, between the end of the pipe and the flange.

The claim also recites “and said flange has be-

(Testimony of George C. Martin.)

tween the pipe and the flange a cementitious filler, in said annular space securing said plate to said pipe." Of course, the cementitious filler secures this plate, because it secures the flange. The patent claim describes particularly a gate, although, I think, as I said before, it refers to both a gate and the valve, so that I find in this commercial device, a plate, a flange, and in use would find, although I haven't it here before me in this exhibit, a pipe which fitted into the end of the valve, would encircle the opening and would leave an annular space between the flange and the outside diameter of the pipe, and there would be then a place which would in practice be filled with a cementitious filler, which by adhesion to the pipe and to the flange would hold the plate and the valve, or the gate, or whatever it might be, in place.

Referring to exhibit 4: This device, which I have, and which I understand is described as device made by defendant in the first place, not defendant's present commercial device, has the same elements as described in the claim, and which existed in plaintiff's commercial device; that is a plate—an opening through the plate through which water may flow, a flange, a means—or a lid or a closing device [50] and place for a cement pipe, or some other kind of a pipe inside of the flange and encircling the opening, and leaving the annular space between the end of the pipe and the flange to be filled with a cementitious filler for the purpose of holding the plate, and hence the other parts of the gate on the valve.

(Testimony of George C. Martin.)

This gate is a little different in its construction from complainant's device, inasmuch as this is what is described in business as an over-arch, the arch in this case being outside of the water; in complainant's device, the arch is an under-arch, being inside—it serves the same purpose; the complainant makes an over-arch valve, which is the same as this; *if* effect they are both alike in effect.

Referring to exhibit 3, the device you describe is exactly the same as the device just described, having all of the elements of the former device operating in the same manner, provided with means for attaching to the cement pipe in the same manner, except that in the former case the flange is circular, and in this case it has eleven sides; the general contour of the flange is circular and would leave an annular space between the outside of the pipe, and is adapted to leave that space to be filled with a cementitious filler.

I find that the claim of the patent in suit comprises, as stated before, a gate having a plate with an opening through which water may flow. This is the plate. (Indicating.) And in the center is the opening through which water may flow; a pipe having its end abutting against said plate. In practice, although it is not shown in this device, cement or other pipe would abut against this plate on the bottom side; that is the only way it can be used. Adjacent to said opening—and it would be adjacent or concentric with said opening—said plate

(Testimony of George C. Martin.)

having an outwardly projecting flange encircling the end of the [51] said pipe and forming an annular space between the end of said pipe and said flange, this gate is provided in that respect with the same identical means as the commercial device of the complainant, and leaves, as I stated of our patent, a cementitious filler in said annular space securing said plate to said pipe. In use this gate is set over the end of the pipe, leaving an annular space between the end of the pipe and the flange, which is filled with a cementitious filler, which causes the gate to adhere to the end of the pipe fastened there against pressure and against leakage, and those are all of the elements of the patent in suit and they are all embodied in "Defendant's Commercial Device"; there is no advantage in "Defendant's Commercial Device," so far as it fulfills the claims of the patent in suit over plaintiff's device; they both operate in the same way; they are held on by the same laws, by the same action of the cement; the fact that there are eleven sides does not give it any greater adhesive power; it does not affect that in any degree at all, so far as I know; it may possibly weaken the structure because it is a known fact that a circle is stronger than a polygonal form, but there is no difference; in fact, so far as I know, both will hold equally well; both will hold sufficiently tight to accomplish all the needs of the irrigator.

It should be understood that when farmers and ranchers commenced to irrigate by underground

(Testimony of George C. Martin.)

pipe systems, there grew a need for some devices which had never before existed in any art. Hydrants and water distributing means were quite old, but were expensive. For instance, this valve, which weighs, say, 22 pounds now sells for about \$5. That, to the consumer [52] the requirement was for a cheap appliance, easy to attach, which did not require a plumber nor an expert to fasten onto a system, and which at the same time would enable the rancher to control the flow of water. The rancher had, in the first place, his pipe. The first efforts which were made with steel pipes, or sheet steel pipes, or cast iron pipes for the reason that when this art first developed, cement pipes were practically unknown. Vitrified pipes never came into general use, except in centers where they could be manufactured economically. They can't be shipped very far on account of the freight. Cement pipes can be made anywhere where cement can be purchased, and the principle item of the expense is the labor. Cement, sand and gravel, and water are the parts used, but in the steel pipes one of the very first evidences of development was this practice. Three or four holes were drilled into the steel pipe. Eye-bolts, or ears, or lugs were either screwed or rivetted into those holes, a gate was pushed up against the end of the pipe, and then bolts were run through the gate or the valve, and through those holes in the lugs, and in that way, the valve or gate was drawn up tight against the end of the pipe. Then, in order to make it water-proof, cement was

(Testimony of George C. Martin.)

packed around to hold the gate or valve in place. Another means was to put a clamp, which by means of a bolt, could be tightened around the pipe, and the valve and gate was bolted to that clamp in the same manner. Another means was to use an ordinary hook bolt where cement or vitrified pipes were used, and holes were punched in the pipe and the hook in the bolt was set into those holes, and then the hole into the pipe was cemented up. Then, afterwards it was discovered that they could punch holes in the ends of the pipe and set what we call lag-screws, [53] or stud-bolts in those holes, and they were cemented in place in the pipe, the cement holding them by reason of their being threaded, or having a bent end, and the gate was bolted on in that way. Then, there were a great many pipes provided with a bell end where it was sought to attach the gate or valve and eye-bolt end of the pipe, a collar was put back of the bell, and that collar was fastened together so as to surround the pipe in such a way that it couldn't slip over on account of the bell end, and the gate or valve was bolted to that. Wherever these bolts were used, the valve or gate was fastened onto the end of the pipe, or made water-tight,—well, it was not fastened by being packed with the cement. Then, later valves and gates were constructed with bolts or lag-bolts, or something which were like your finger, and cast integral and fastened or riveted to the valve or gate. They were simply set on the end of the pipe and cement was packed in around them, and it in time

(Testimony of George C. Martin.)

would set and become part of the pipe, and having the bolts in would hold the appliance in place.

The first device that plaintiff used prior to the patented device might be considered to be something like the present device, and it was set inside of the bell end of the pipe. The only distinction between it and the present device in general effect, would be that on the outside, inside or lower end of the flange was a bead or a projection; that was set into the bell end of the pipe and a fillet of cement was filled in between the pipe and the flange, and it was held. By attaching it in that way, that little fillet and that little bead would be unable to slide out, and hold the gate in place. That, however, was found impractical; for some [54] reason or other it did blow out. Later, a hook-bolt was attached to the gate, run down, a hole bored through the pipe, and it was bolted in place with that hook-bolt. Of course, in that practice, where the gate was set down inside of the pipe, the cement being packed around it, formed a part, practically, of the pipe, so it were in effect as though the gate and valve were actually molded into the pipe.

That practice would necessarily obstruct the flow of the water to the extent that the valve—the insertion of the valve reduced the orifice of the out-flow, and the advantage of having the full outlet is this: That a man in planning his irrigation knows, for instance, that he has so many miners' inches of water and knows how many valves to put on his

(Testimony of George C. Martin.)

land, and knows how many miners' inches of water his land needs. Now, if he has got to use a valve wherein the outlet is smaller than the valve, he has got to put in bigger pipes than he needs, because he has got to have a pipe big enough to carry his valves, not big enough to carry his water.

To obviate the difficulty of making the main line bigger they would take a bigger pipe and place it over a smaller pipe. That does not seem much; that does not seem to be a very serious matter, but these pipes are all made in moulds; I think it is safe to say that we manufacture all the moulds used in this country. The moulds are more or less expensive. If a man were obliged—he may only have needed twenty-five or thirty of these little stand-pipes, but he would have to buy a mould-set to make those twenty-five or thirty lengths of pipe for a stand-pipe.

Q. Now, when I interrupted you, Mr. Martin, we were speaking about the prior devices used by complainant, and you spoke of the flange or rim or bead around the bottom of flange that fitted onto the inside of the pipe over which a cement filler was put. Was a cementitious filler used in said device for fastening onto the pipe? [55]

A. No. it—as far as the meaning of a cementitious filler is applicable to this patent, it would mean a cementitious filler or a filling of cement between the flange and the pipe. In the old use the cement was piled or moulded over the end of the pipe down into the inside, and over a little bead or ridge on the valve itself.

(Testimony of George C. Martin.)

When that cement was plastered in, it would adhere to and become a part practically of the pipe itself, and would, as the other witnesses just described, require to be sheared off in order to blow the valve out, but it was found in that practice, that was the first experiment made, that it would not, in fact work; we did have blow-offs. That was before I was connected with the company, but I know what happened. I have seen the old parts and the old drawings. Then, later a bolt was put down here on a riveted end through some convenient part of the flange and fastened on here, bored through the pipe itself. This bolt passed through that hole and a nut or washer put on the end, and then a cement packed in. That made a good union—it made a good tight union, and you couldn't, of course, pull it out, but the difficulty was it couldn't be put in, and it required the pipe to be punctured, and the difficulty was in punching the holes through the pipe it broke the pipe; while these pipes are hard and durable, still they do break.

The stand-pipe with the gate on the inside as a matter of fact, was attached in the same way. Now, where a man desires, as he sometimes does, to pass water right through the line, he puts a valve on top. That closes the top so the water must flow through, but when he opens that valve, he has got to have enough pressure for the water to come up through the [56] stand-pipe. Sometimes he hasn't enough head; therefore he puts on a gate. Now,

(Testimony of George C. Martin.)

where he puts a gate on, he puts the gate on just exactly as described in that patent. There is the opening and the gate and the lid that goes over that opening, with a handle that extends out over the pipe. Now, that gate is fastened onto the end of the pipe just exactly the same as the valve we have described is fastened on the end, except in this case it is horizontal. A valve would do just as well here. Now, the water coming through, when he closes the gate, comes up and spills out on his irrigating.

The pressure on that valve placed on the inside of the stand-pipe is on the face of the valve, and its entire tendency would be to keep it in place. Now, as Mr. Bent says, where he put them on in the first place in that same stand-pipe, he used to put them this way on the inside so they would be sure to hold. Now, he very frequently puts that gate on the outside.

As a business manager I say that the effect of the infringement of defendant on plaintiff's business is of course, we lose business wherever they make any, and we are unable to charge as much for our valves as we believe they are worth. Our business is very much hurt by the Snow competition.

Q. (By the COURT.) I would like to ask the witness a question. I don't think you testified, you have stated your familiarity with the prior art for a considerable number of years,—what have you to say with reference to the plaintiff's device as being the first application of the principle embodied there

(Testimony of George C. Martin.)

in the art in holding the valve or gate in the position that his patent calls for?

A. I have examined all of the patents in the Patent Office on this art of valves and gates, numbering something like six thousand. I think I have had and looked over every [57] patent in any water distributing system, and so far as I know, this is the first, and until defendant's use, the only use that I have ever seen or ever heard of, either in the patented art or in the prior art, where a cementitious filler alone was depended on to hold a gate or valve on the end of a pipe under the water pressure, or in any other art.

Cross-examination.

The element of the claim of this patent in suit,—a plate having an opening through which water may flow,—is not a new element. Plates with openings through which the water may flow, of course, have existed in the water distributing art such as rain spouts, for hundreds of years; there have been many of them; the flange carried by the plate is an old element; it is old to use a plate with an opening and a flange. All the uses where that combination is found provided for, a flange fitting as close as it can be, usually a direct fit over the end of your pipe. Of course, you can't get anything to fit over anything else without an annular space, but the patent here provides for an annular space in its broad sense, big enough to pack with cement, because if the space is small and you can't pack with cement, you

(Testimony of George C. Martin.)

can't get your result. Where this flange and annular space and cementitious filler are used with a plate, they are absolutely new; where they are used in continuation of a pipe-line, they are not new, because I have seen pipe-lines in Pompeii that have been there thousands of years. That plate has a very important function, because that plate is what holds the head of the water. Where you have just the flange ring, or the flange and the spigot end in a continuous pipe-line, you don't have any head of water against it. Where you have a plate you do have a head of water. [58]

Q. (By Mr. SEVERANCE.) If I find in the prior art a device having an opening through which water may pass, and having flange projecting from said plate, and so forth, to encircle the end of a pipe to form an annular space between the flange and the pipe, and a cementitious filler between said flange and said pipe, I have all the elements of the claim, haven't I?

A. No, you haven't all of the elements, and you haven't the most important element, because the most important element of all, figuring that way, is the lid, or plate, or closing means—slide as it is described in the patent to hold the hydrostatic head of water. You will find plenty of instances in the prior art where all these things with something else are present.

I find in the claim, this element,—a gate.

If, with the other elements you find in the prior

(Testimony of George C. Martin.)

art a gate susceptible of being opened and closed, you will have all of the elements of our claim. Of course, you understand that it is my interpretation of the prior art that the omission in this patent of some old devices distinguish it very materially from some of the prior devices. For instance, if a hook-bolt were used, or a ring, or collar, or a lag-screw in addition to what we have here, a man would have all the elements that we would have in our invention, but we would not have all the elements that he had in his. We omitted an element that is the whole function of the thing. We get this possibility by making the cement holding amply strong.

Cross-examination.

The face plate is described as being provided with a suitable seat for the closing means, and a flange for encircling [59] the end of a pipe. The specification says: "It may be rivetted." Of course, in the actual practice of the art now it is cast integral with the plate. In the specification it is shown as a flange fastened, rivetted, bolted, screwed, or in any other convenient manner fastened to the plate, and in the claim it simply describes the plate and the flange as being part of the same device. It would not make any material difference in the patent, if it were rivetted or cast integral. The plate 6 in the specifications and the ring 12 are separate, or, rather, they are separately described. They are bolted, however, together and become one part.

The claim of the patent simply calls for the plate

(Testimony of George C. Martin.)

and the flange. It is immaterial whether the plate and the ring, as you describe them, are cast in one part and simply called a plate and a flange, or whether they are made separate and bolted together. We could, for instance, take this valve and saw it in two and have a plate and a ring together they simply comprise the plate. Of course, in this patent, there are simply described, a gate, and it is specifically stated it is immaterial. The only claim in the patent is the combination of the flange, the opening, the plate, the cementitious filler, and the pipe. The specifications simply describe, one manner or method of making this gate. In the first place, they were made in two parts because it was thought they wouldn't come out of the sand so easily; we had to make them in two parts. Now, however, we use cores and get the whole thing out of the sand in one operation, which saves our rivetting it. It was the notion of the patentee if this patent covered anything at all, it covered practically every use of this art, and there was no intention to limit it to any specific—
[60]

The forming of annular space around the end of a pipe is not an old element in the sense of its use in this patent.

Q. (By the COURT.) Well he is not asking you that. He is asking you if it is an old element, and undoubtedly it is an old element, but this application,—the function it performs may be the very secret of the novelty.

The WITNESS.—What I mean by what I said

(Testimony of George C. Martin.)

was this: That it is old to use a plate with an opening and a flange, but it—

Q. (By Mr. SEVERANCE.) Then the plate or flange is old according to your statement, and do I understand you that the cementitious filler between a flange and a pipe is not new?

A. Oh yes; it is very new; I don't know of any similar use.

Never saw it used before; I have seen many cases where cement has been packed around the union after the union has been made by bolts or by screws.

Q. (By the COURT.) Well, the result of that is that the element is old, but the application of it is new.

A. Yes, and there is a new element; there is the plate.

We omitted an element.

For instance, what I mean is this: If you will assure us—if you will assure us you will provide means and see that they are followed for having this gate of yours bolted on like in the prior art, we won't claim infringement.

We don't sell pipe with the article. We simply put it out in the form in which it is shown here in the exhibit. It must be used, of course, to have any value, with the pipe, as they are used, or as in ours.

I have never seen any structure with the bell and spigot joint similar to this in which a valve has been secured, [61] a valve or gate has been secured to piping by cement.

(Testimony of George C. Martin.)

Testimony of Arthur S. Bent, for Plaintiff.

ARTHUR S. BENT, called on behalf of plaintiff testified as follows:

I am 53 years old; live in Los Angeles; am a contractor in concrete construction and specialize somewhat in concrete pipe-lines. I do not know as I am an expert. I have done a good deal of that sort of work; I am familiar with cement; and pipe connections, the pipe consisting of cement and the device being of metal construction; have engaged in that line of construction twenty-five years. My recollection is that my impression at the time I first knew of plaintiff's device #2, it would not succeed because I thought it would blow off under any considerable pressure. That was before I had seen it *it* tested. My recollection of the prior devices without remembering them in detail is they were all of a sort which had the flange which could be cemented over so that the moulder made a bond over the iron. The moulder would have to be sheared to separate them, or else to have ears and lugs or devices of that sort which could be physically joined to the pipe, requiring something more than a straight lift to separate them.

Until I saw plaintiff's device, I don't remember any device where they depended upon a cementitious filler between a straight flange encircling the end of the pipe and the pipe.

Cross-examination.

The reason I supposed the cement was not used

(Testimony of George C. Martin.)

in connection with the iron, was a general doubt as to its success. We always placed our ordinary slide gates with the water pressure against the gate, but since then I have often stuck a gate right on with the water pressure behind it and had it hold. Previous to some such experience as this. I would not have expected it to stay.

I don't think I ever had seen a cementitious filler used where it was required to obtain a hold upon the iron to hold it on the pipe up to the time I first saw something [62] of this sort. I don't know whose this is, but a cap of this sort was the first time I had seen it done. I thought that a device of this sort would blow off. The kind I was familiar with were fastened by other means, the ears and lugs—the devices that I was familiar with at that time had some protecting iron or an arrangement by which the moulder could come up over the iron so that the moulder itself would have to be sheared. It is hard for me to remember just what were in use at the time I first saw this. I remember this was new to me and I expressed some doubt as to whether it would succeed. We have used valves *or* various sorts for many years, the moulder fastening onto the iron in different ways, but I don't recollect anywhere there was nothing to prevent a straight lift, except the bond between the cement moulder and the iron, I don't remember any.

One difference between the ordinary bell and spigot type of joint for connecting another article or a pipe to the end of a pipe and exhibit #2, complain-

(Testimony of George C. Martin.)

ant's device is that the water or liquid is flowing through the pipe. If it is stopped at the end, of course, the pressure at the end is a lateral pressure, a wrapping joint which could hardly break out, and then there is a skin friction of the conduit with the earth with which it is surrounded. The conditions seem quite different to me; a joint in a pipe-line would not be like this.

A. Why, the conditions seemed to me quite different. If this cap were taken off—if the plate were taken off and the water allowed to pass through, I wouldn't expect this to come off—I wouldn't expect the frame to come off; with the water locked in there, I did think it would come off.

The principal of the joint is practically the same. The difficulty was partly to get the strength necessary to hold such a device in place over the ordinary bell and spigot joint; but [63] the effect of the force would be entirely different. If you put a hydrostatic head on your pipe-line, it would not have a tendency to pull the pipes apart; it would have a tendency to break them—rupture them.

On redirect examination, referring to exhibit 3, Defendant's Commercial Device.

Practically there is no advantage in having one shaped as the defendant's device, over the one shaped as complainant's is. I have never known one of these to fail that I have had any experience with.

In "Defendant's Commercial Device" the interior leaves or flanges that appear on the inside of

(Testimony of George C. Martin.)

this flange, have a tendency to give a greater holding capacity.

I am a small stockholder in the plaintiff company.

Testimony of George Sidney Binckley, for Defendant.

GEORGE SIDNEY BINCKLEY, called on behalf of defendant, testified as follows:

I have been engaged in the practice of engineering of various branches in mechanical, mining, civil, and hydraulic work for about twenty years; I am a member of the American Society of Civil Engineers, and at present, my practice is in hydraulics principally, my occupation being that of consulting hydraulic engineer. I am familiar with the Kellar patent in suit.

Q. Compare the elements of the claim, in a general way, with the bell and spigot joint which has been referred to.

A. Do you refer to the bell and spigot joint as employed in a pipe-line, or as employed in connection with a gate?

In examining this claim, I find a gate and plate through which—with an opening through which water may flow, a pipe [64] having its end abutting against said plate, an outwardly projecting flange encircling the end of said pipe, and a cementitious filler in said annular space securing said plate to said pipe; I think that covers the elements in the claim.

The bell and spigot joint: As employed in connection with a pipe-line, the elements are a pipe having

(Testimony of George Sidney Binckley.)

an enlarged portion, or bell adapted to encircle the end of a corresponding pipe, and having an annular space within which is placed the material, and with which the joint is made. In connection with a valve or gate, there is in this combination a gate; that is to say, that part of the structure which closes the aperture in what has been described as the plate, and there is the outwardly projecting flange attached to the plate and adapted to encircle the end of a pipe, which generally abuts upon the metal at the end of the plate. I used the term "plate" because that seems, and previous testimony seems to have been taken as meaning that part of the structure upon which is formed the seat that carries that element I have described as the gate. The annular space in such a case is for the purpose of receiving the material with which the joint is made between the end of the pipe, considered as a structure. I think that covers the description.

HASSALL PATENT NO. 318,616.

There is disclosed here what is plainly a bell and spigot connection with some novelty of filling. That is the only thing I see in this. This filling is described in the specification as 'plastic cement'—such as mastic or like cement. This forms a cementitious filler between the parts.

I don't think I would say that this joint, as shown here, could be compared to the gate as disclosed in the [65] plaintiff's patent, this being purely a joint in a pipe line.

(Testimony of George Sidney Binckley.)

GALVIN PATENT NO. 337,945.

I see a significant connection between that and the patent in suit on sheet 2 of the Galvin Patent, Figures 4 and 5. There is apparently existing in this the elements that exist in the patent in suit. There is what may be particularly *be* described, I think, as a plate, in the sense that it has been used. There is the gate for closing the aperture through the plate. There is the projecting flange, and apparently from the structure, the conventional structure of this bell, it is intended to provide an annular space around the pipe and which enters this bell, the annular space being for the customary purpose of receiving packing material.

BURRITT PATENT NO. 515,514;

The same elements described in the patent to Galvin exist in this patent to Burritt, except they are duplicated on the two sides of the gate itself. In other words, this gate is plainly intended to resist pressure from either direction, while that of Galvin is only adapted to resist pressure from one direction; they both employ bell flanges adapted to receive a pipe; it is plainly intended that there shall be an annular space for the purpose of receiving the caulking material.

BENTLEY PATENT NO. 827,409.

This is a pipe connection having certain structural peculiarities, and I find a reference here to cement or other filling; it is stated here that the socket A is further provided with an inner flange or rim E, suffi-

(Testimony of George Sidney Binckley.)

ciently deep to permit *or* ready insertion of the spigot end of the next pipe and provide the required clearance or opening F for the introduction of the binding material. I saw somewhere in this reference to [66] cement. Yes, (reading:) "This chamber is filled with cement, lead, or other binding material H."

SEITZ PATENT NO. 779,973.

This is described by the inventor as an irrigating head-gate in this. The elements consist of a plate having an aperture through which water may pass, a slide gate, the function of which is to close this aperture, and on the opposite side of the plate is a projecting flange, in this case adapted to enter the bell end of a pipe. Between the flange and the interior bell of the pipe exists an annular space. In the specification this annular space being described as being of sufficient width to allow the putting of cement 6 or other packing material in place after the conduit has been connected with the plate 1. There is also in this case a flange surrounding the pipe which is provided with bell and bolts connecting this flange with the gate itself, or gate structure, by means of which the gate structure is drawn up into position at the end of the pipe, which is provided with the bell. Comparing the Seitz patent carefully with the elements of the patent in suit, I find a gate having a plate with an opening through which water may flow; a pipe having its end abutting against said plate, adjacent to said opening; I hesitate over the exact meaning of the word "adjacent"; it is in prox-

(Testimony of George Sidney Binckley.)

imity to that opening; I find such a flange forming an annular space between the end of said pipe and said flange; I see that cement is specified in the description,—“cement or other packing material.” You may say a cementitious filler in that space. This is an example of a cementitious filler holding an [67] iron pipe with respect to a cement, vitrous or tile pipe, except that it is proper to notice the fact that additional means of securing the gate to the end of the pipe are shown in the Seitz patent, namely, the four bolts passing through the gate structure, and the ring behind the bell on this pipe. The function of these bolts, I will not, however, express an opinion on, as it may have been the inventor’s idea that they were necessary for strength and security, and it may have been his idea that they would have been convenient in the assembling of the gate on the end of the pipe.

By the COURT.—The specifications here call for—cement or other suitable packing material. I would hardly say, from the specification and the claim here, that the so-called packing material was intended as a holding device.

The WITNESS.—I think that inference is the one that I did, myself, make. It is to make, undoubtedly, a tight joint.

In fact, in 55 he has specified cement or other suitable packing material for the purpose of making a water-tight joint; hence, he apparently relies on the bolts for strength.

(Testimony of George Sidney Binckley.)

The COURT.—Yes, it would indicate that it must have been.

Q. (By Mr. SEVERANCE.) Would the cementitious filler and water-tight connection have had any degree of holding effect upon the parts most in need?

A. It might easily be quite sufficient for the purpose although not anticipated by the inventor.

JACKSON PATENT NO. 927,353.

This is a bell and spigot joint with certain structural peculiarities consisting of three lugs extending inwardly from [68] the inner surface of the bell, which appear to have the function of centering a spigot end of the pipe in the bell. There is with the interruption of these lugs, an annular space adapted to receive a packing material, caulking material, of whatever character it may be. There is also in this specification in line 95, “ . . . to allow the cement to flow in around the spigot end of the pipe sections to firmly retain the same in position and to make a very rigid joint,” reference being to a cement filler.

WORLEY PATENT NO. 969,320.

This is described by the inventor as an irrigating pipe gate in this case. The slide gate proper rests against a circular flange fitting inside of the end of the pipe and secured to the end of the pipe by cement, apparently,—yes, in 95, with reference to the luting 18 of cement is then applied around the collar and against the end of the pipe so as to cement the collar firmly in the pipe.

(Testimony of George Sidney Binckley.)

BUTTORFF PATENT NO. 976,720.

The inventor describes this device as a headgate. In the Buttorff patent I find a plate—an opening through the plate which water may pass, a flange, rearwardly projecting flange from this plate, and a pipe abutting against said plate, with an annular space between the outside of the pipe and the inside of the rearwardly projecting flange, together with the slide or gate proper by means of which the opening through which the water flows may be closed. There is an additional element in the Buttorff patent in the bolts which connect the plate, having a rearwardly projecting flange to the pipe. These bolts extend from inwardly projecting lugs in the annular space between the pipe and the interior of the flange, and other lugs attached to the pipe itself.

[69]

Q. (By the COURT.) They perform apparently a similar function to that found in the Seitz patent?

A. I don't think so, your Honor, because the structure of this plate and the attached or integral flange, together with the character of pipe that is shown, would in itself be such that if the annular space were filled with cement it would be impossible to remove the gate from the end of such a pipe. My impression would be that the function of those bolts would be merely to hold the gate in place while the cement was being put in place, my impression being based on the obvious fact that such a cement filling would provide a connection of very great strength.

By the COURT.—I couldn't concur in that con-

(Testimony of George Sidney Binckley.)

struction; there is too much strength in that construction—apparent strength for a mere temporary purpose such as would be subserved by holding it in place. I would be inclined to say they were intended for strength in the annular filling there for a tight joint.

A. It may have been the inventor's intention, Your Honor.

Q. In this Buttorff patent then you find all of the elements stated—all of the elements that are stated in the claim of the patent in issue, do you not?

A. Yes.

The Wakefield patent has certain structural peculiarities. It appears that the bell end, as shown on this pipe is provided with a broken annular groove in one side forming a lock for the spigot end—a mechanical lock.

ENGLISH PATENT NO. 7,742 OF 1837.

I find in Fig. 2 an example of a gate adapted to resist pressure in one direction, consisting of the gate element proper, the seat upon which this gate rests, which has been described as a plate, and I find a rearwardly projecting [70] flange which is plainly intended to receive that end—the spigot end of a pipe, providing an annular space around said pipe, which may be filled with any suitable material for rendering the joints tight and firm. With the exception of the spigot end of the pipe, the presence of which must be inferred, all of the elements described in the Kellar patent appear to be present in this English patent. No additional means of filler are

(Testimony of George Sidney Binckley.)

provided for holding the spigot end of the pipe, except the inclosing flange.

Copies of said letters patent are offered in evidence.

Q. Mr. Binckley, quite a little has been testified about the strength of a cement filling employed for fastening valves, gates or the like to piping where it was necessary for the filler or cement to obtain a certain degree of hold upon the metal. I would like to ask you what you know of this and of the history of fastenings of this kind.

A. I think that the use of cement in making such joints is a very great antiquity. We have an example in a number of National Geographic Magazines which are here in court, of a bell and spigot joints, which are said by archaeologists to have been in use about thirty-five hundred years ago on the Island of Crete on the Palace of Cnossus, and it is said by the writer, who is the authority for this, that these pipes were cemented together. There is here for the information of his Honor a picture of these pipes in this number of the magazine which we have. In addition to the well-known antiquity of that form of fastening, there are a good many modern examples. The description, your Honor, is on another page. There is no doubt that the use of cement in the annular space in the bell and spigot joint makes a very strong joint, indeed. It is not a [71] matter of opinion or doubt. I don't know personally of any tests having been made as to the actual strength of such a joint, but that method of joining pipes to-

(Testimony of George Sidney Binckley.)

gether and of joining gates to the ends of pipes has been in use by the water department of Los Angeles, I believe, upwards of twenty-five years, and it is the standard method used today all over the city in pipes exceeding ten inches in diameter, nothing else being used except where the conditions are such as to preclude the possibility of giving the pipe time enough without water in it to allow the cement to harden.

(Catalog of the Crane Company published August 1902, pages 110 and 118 are offered in evidence as Defendant's Exhibit "L.")

I have myself used cement in making a connection between the end of a cast-iron pipe and a cast-iron gate. I made this application of knowledge that I had of this method of joining pipes in the city of Monterey, Mexico, just about ten years ago; I think it was about to the month ten years ago that I made such connection between the end of a cast-iron pipe, a ten-inch pipe and a twelve-inch bell and gate valve on the end of this pipe on the outlet of a reservoir forming part of the water works system of the city of Monterey; it was our auxiliary reservoir; the valve was similar to the standardized valve we have had before us, and fastened at the end instead of an intermediate point in the pipe.

The pressure customarily encountered in water supply systems for a city, of course, are customarily in excess of those that are used in irrigation practice. The pressures ordinarily encountered in irrigation practice where cement pipes are used are generally very trifling, a matter of a few pounds to the square

(Testimony of George Sidney Binckley.)

inch, while those in the distributing [72] systems of the water supply in the city run up very high; pressures of a hundred pounds to the square inch are not unusual.

Comparing the character of a cement joint disclosed in the Buttorff patent with that shown in the patent in suit, the joint shown in the Buttorff patent would be the strongest. If the bolts shown in the Buttorff patent were absent, it would still be the strongest; by reason of the mechanical law, which is provided by the forms of a flange and the pipe. You see, the valve not only has a slant, but the pipe has a flare. The mechanical law that is provided by reason of the shape of the valve and the shape of the end of the pipe, that make the line such that even though the cement filling was not water-tight at all, it would prevent the removal of the gate from the end of the pipe—or appliance from the end of the pipe, without either the collapse of the pipe or the rupture of the ends. Assuming the bolts were ignored altogether, it is a very stronger joint. I think that the cement or other rigid parts of the device would break before the yielding quality of the others would have effect.

The type of connection for the bolts and eyes shown on this Patent Office drawing, which, of course, generally makes no pretense to making proportions, that connection would be very weak; naturally, it could be made strong if one chose to do it, but as shown, it is a very weak connection.

(Testimony of George Sidney Binckley.)

By the COURT.—The witness gave it as his judgment yesterday, in referring to this particular device, that that bolt connection was made for temporary stay while the cement was setting.

Mr. SEVERANCE.—Yes, that was suggested.
[73]

The COURT.—In that I couldn't agree with him.

Mr. SEVERANCE.—You couldn't? Well, possibly not—

The COURT.—Because I do not think that the general structure, and for the very reasons that have been suggested by the witness himself, that would call for any necessity for a temporary stay; I think they were intended for additional strength.

The WITNESS.—They may have been so intended by the inventor. I merely expressed the opinion, however, that they were wholly unnecessary in view of the excessive strength of such a joint.

Comparing the illustration in the exhibit "L," Defendant's Exhibit "L," "Crane Catalog," with the claim of patent in suit, when this gate *in* assembled with the pipe inserted in the bell, and the cementitious filler in the annular space between the pipe and the bell, I find all of the elements in this claim to be present in this gate. I find in this gate, as shown on page 12, of the Crane Catalog, a gate having a plate in the sense that the word has been used here, with an opening through which water may flow, a pipe having its end abutting against said plate, adjacent to said plate against said opening, said plate having an outwardly projecting flange

(Testimony of George Sidney Binckley.)

encircling the end of said pipe and forming an annular space between the end of said pipe and said flange, and a cementitious filler in said annular space securing said plate to said pipe. All of those elements are present in a standard gate-valve such as that illustrated on page 110 of the Crane Catalog when assembled with a pipe and the annular space filled with a cementitious filler, which I have stated that I have myself used about ten years ago, in Monterey, Mexico.

Comparing the claim of the patent in suit and the device with the commercial type of valve in the catalog, the [74] function of the flange in each case is the same; the construction is not identical, inasmuch as the flange in the Kellar gate, as exemplified by this frame and flange before me, is a separate piece, while the flange in the commercial gate, as shown in the catalog, is cast integral with the gate itself; that is the only essential difference.

Ignoring the facts that these two elements in the Kellar gate are separate, the functions are the same, and the essential structure is the same.

I find the same elements or the elements of the claim identical in the commercial valve with the same identical purpose and function. They are alike in all essentials including their function. In other words the elements described in the claim are all present in the commercial gate, when assembled with the end of the pipe inserted in the bell and the cementitious filler in place.

The COURT.—But there is a well established rule

(Testimony of George Sidney Binckley.)

if the principle has been applied in a way that would not suggest the application and function that it is performing under the patent in suit, that it is not necessarily an anticipation at all.

Mr. SEVERANCE.—No, we do not find that such has been the use.

The COURT.—My comment was simply in connection with the witness' statement that all the elements were there, and that is true, the elements are there, but whether or no they would suggest to the mind of the practitioner the specific function to be performed by the novel feature of this is a different thing.

Referring to defendant's Exhibit the "Pomona Ring" Exhibit "M." [75]

Mr. MONTGOMERY.—In order to expedite the matter, I might make an explanation with regard to this ring which does not seem to me at all material. Of course, that fact that it is not designed to obstruct the flow of water, or have anything to do with water, except to form a cover to the standpipe—

The COURT.—I was going to ask that. Is this used in connection with a practice which is calculated to have to resist pressure?

A. No, your Honor.

The COURT.—Then, I don't see the value of this for present purposes at all. I thought when you first brought it forward it was intended to —

Mr. SEVERANCE.—No, only as showing the old use of attaching a flange put over the end of the pipe.

The COURT.—Well, I don't find anything in this English patent that enables us to do other than

(Testimony of George Sidney Binckley.)

merely infer what this annular space would be. I don't see any direct reference to it. Can you find in the English patent anything that directly refers to the method by which the annular space—

Mr. MONTGOMERY.—It is only by inference, your Honor.

The COURT.—It is only by inference, yes.

Mr. MONTGOMERY.—Conventional form.

The COURT.—Yes.

On Cross-examination.

Q. You stated on your direct examination that the elements of the Hassall claim, exhibit “B,” were a flange face and a filler. What other elements do you find beside the above in the patent?

A. I find two concentric rings described in this specification, in which it is said the spigot end—or I will [76] go back, “In the drawing A represents one pipe section, which is provided with a socket B and shoulder C at the inner end of the socket. A in the adjoining pipe section, the spigot end of which is inserted into the socket B and tightly stuck there by two concentric rings, D and I, which are either cast by means of a cylindrical mould into the socket B and around the spigot end of the pipe A or placed loosely therein as desired. Between the adjoining surfaces of the rings D and I a plastic cement—such as mastic or like cement—is placed, by which a tight joint is formed. The inner edge of the ring I is made bevelled, so as to prevent the cement from being forced forward into the socket B when the pipes are being pressed to-

(Testimony of George Sidney Binckley.)

gether. The surplus fills the annular space formed between the bevelled edge of the inner ring and the outer ring, as shown in the drawing. This pipe joint is very effective when the same is not exposed to much strain or pressure.

Cross-examination.

Referring to exhibit "B," the Hassall claim.

In the specification as to whether the pipe joint is adapted to withstand pressure, it is stated, "This pipe joint is very effective when not exposed to too much strain or pressure."

Referring to exhibit "C," the Calvin hydrant.

It might be the case that the packing material in the groove of the ring be a gasket of rubber, although it is not a thing that I would consider likely. The purpose of the groove in the bell end of the ordinary pipe, bell and spigot-pipe, is to retain the material which is caulked into it; lead, as I remarked in former testimony, as being the common and oldest generally used material with cast-iron pipe. [77]

Exhibit "E," the Bentley patent, I consider this patent significant in connection with the patent in suit, only so far as it exhibits a form of bell and spigot joint.

The specification states, "This chamber is filled with cement, lead, or other binding material H." The shape of the structure has this effect as a binding means, it provides a mechanical lock assuming the filling material of such character as to be strong in sheering.

Exhibit "F," the Wakefield patent, I consider

(Testimony of George Sidney Binckley.)

only significant in connection with the patent in suite, in illustrating one form of bell and spigot joint. There is a mechanical lock indicated in this, independent of the filling material.

Exhibit "G," the Seitz patent, according to the specification, the gate is not intended to retain water in the pipe, it is intended to resist the entry of water into the pipe. The binding element consists of four bolts.

In Exhibit "H," the Jackson patent, the purpose of the lugs in this device is primarily to center the spigot end in the bell.

In 63, it says, "The lugs C also are provided with a pocket F for retaining a packing of hemp G and for allowing the cement H to flow in around the spigot end of the pipe section to firmly hold the same in the socket."

This patent is significant in connection with the patent in suit, to a limited extent only, showing the use of a cement filler in a bell and spigot joint.

Exhibit "I," the Worley patent, on line 16 refers to the water flowing into the pipes, and line 34 shows that the device is to be placed on the inside wall of a ditch, and line 75 reads, "—so as to prevent water from flowing into the [78] collar from the ditch or some other source of supply." It seems very plain that the device is intended to receive water from the irrigating ditch.

Q. (By the COURT.) Well, it says, "this luting may also embed the posts 11 and 12 thus permanently securing the collar in the end of the concrete pipe."

(Testimony of George Sidney Binckley.)

What is meant by the term "luting"?

Mr. MONTGOMERY.—Luting is an adhesive substance.

A. Claim 3. These wire members are described as being bent to form clamping limbs, and the luting is described as embedding a portion of said wire members to retain the collar in place.

This patent in general is somewhat similar in its method of permanently securing the collar to the end of the concrete pipe, to the method as employed by Mr. Kellar that was described yesterday, where a collar with a bead around the bottom was placed on the inside of a pipe.

Q. Exhibit "J" I believe is the Buttorff patent. Is this gate designed to retain water in the pipe, or to receive it from a ditch or canal?

A. I think it would perform either function.

Q. What was it designed for? What was the patent claimed for?

A. I find in 15, "My invention relates, generally speaking, to improvements in flood gates, adapted to control the flow of water from an irrigating ditch or canal to a lateral or branch ditch which supplies the consumer with a pre-determined quantity of water."

THE COURT.—This really is in the nature of a measuring gate.

A. That is practically what it is.

With respect to the use of a hydrant in Monterey [79] Mexico, I've forgotten what make of valve it was; it was a twelve-inch spigot end, or I should say,

(Testimony of George Sidney Binckley.)

bell gate valve, and I don't remember now where I got the valve....

There is a bead on the end of the bell; it is a standard method of construction on the bells of either pipes or gates. The purpose of that bead is to furnish additional strength at that point.

There is a groove on the interior of the bell. I think there is no doubt but that I had a curve on the flange of the valve which I set. I don't believe that I ever saw one without it before this. The spigot end of the iron pipe to which this gate valve was attached was that of the regular standard cast-iron pipe; it was a piece of stock pipe the same as I used on the other parts of the system. I really don't know whether it had a bead on the end or not. They usually do, your Honor, but very frequently the bead is lost by the necessity of cutting the pipe to length, but in this case, likely as not, this bead was cut off. I don't know; I paid no attention to it and laid no stress on it, because I was not nervous about it. This gate was designed to be a part of the system but was not connected at once.

I believe it was subject to pressure before its eventual connection with the pipe.

The term "gate valve" used in commercial work is a valve in which a vertical—I say a vertical, a gate is inserted at right angles to the line of flow of pipe; that is to say; the axis of the pipe. The term gate-valve is used in such a case in contradistinction to the term globe-valve, where the aperture is closed by pressing a disk to a seat within a cast which is gen-

(Testimony of George Sidney Binckley.)

erally globular in form; hence the [80] name globe-valve, and in commercial and engineering work, the distinction is made between gate-valve and globe-valve, because the gate-valve leaves a perfectly clear aperture in the opening of the pipe, while the globe-valve forms an obstruction, and has that difference in its structural elements.

Redirect Examination

Q. Are you of the opinion that it would make any substantial difference in the hold of the cement upon the iron, if the walls of the flange and the pipe were not parallel—were not substantially parallel?

A. If they are converging walls to the flange, as shown in the Buttorff patent, it would form a mechanical lock; if these walls diverged, that mechanical lock would be absent. Therefore, I would say where the walls converge, as they do in the Buttorff patent, there would be that difference, there would be a stronger connection, because in the other case adhesion alone would be relied upon in the Buttorff; the sheering strength of the concrete becomes a controlling factor.

I should say that the adhesion of cement upon the iron would be sufficient for most ordinary pressures, as such, for instance, as they might have in an irrigating system, if the divergence of the flange is not too great. If it approaches parallelism, it would be practically the same. It was testified yesterday by one of the plaintiffs that there is an actual slight divergence in the flanges, but I don't believe such

(Testimony of George Sidney Binckley.)

a divergence would make any serious difference so long as it was slight.

The relative pressure likely to be on any irrigating system as to the pressure that would be upon water-mains is probably one-twentieth of what would be upon water-mains, [81] I should say; naturally that will vary according to the conditions under which the irrigating is done.

Recalled and asked to compare "Complainant's Commercial Valve" with the claim of the patent in suit and also with the standard Crane valve of Exhibit "Crane Book" says:

In comparing these two valves with the Crane, assuming in each case that the valve is assembled with a pipe connected to it with a cementitious filler, the elements in the claim exist completely in both of these valves, the complainant's valve and in the Crane valve. The essential elements in the claim in the Crane valve, and in the complainant's valve are identical, and the functions of those elements are identical. That, with strict reference, of course, to the claim, its wording and the elements as laid down in that claim, I find substantially the same elements used in substantially the same way and for the same purpose.

Recross-examination says: There is a groove on the interior of the bell in the Crane valve; that, however, is not an element which is recognized in the claim, and I would not consider that as an element in the structure itself. It is a structural detail which

(Testimony of George Sidney Binckley.)

may or may not have a practical importance. It may have a function where used with lead; it unquestionably has a function where used with cement.

Recross-examination.

I don't remember having seen a concrete pipe with a metal flange connected by means of a cementitious filler alone before the patent in suit.

Testimony of John Mitten, for Defendant.

JOHN MITTEN, called on behalf of defendant, testifies:

I am 36 years of age, been working for the city water department of Los Angeles, California, for the past ten years as a caulker—a pipe man. [82]

In making joints with iron pipes, or pipes and gates or valves what we generally use depends a good deal upon the size of pipe; the way the county now has got of saving it is using cement instead of lead, and we have used a whole lot of cement—lots of cement; in the majority of the big pipes it is all cement.

Anything above three-inch we generally make of the cement joints; the use of cement in making joints has become standardized with the water department here; we have found in the Los Angeles Water Department the strength of the cement joint under heavy pressures upon the connections successful. We have turned in as high as 110 lbs. pressure against such cement joints. It has been well known that cement makes a strong joint with iron mechanisms under pressure; we have made cement connec-

(Testimony of John Mitten.)

tions at the end of a pipe, but on where we got extreme pressure we generally block them, or put on what we call a lug, and we have, furthermore, on the low pressure where we don't pay much attention to blocking them at all, but under our extreme pressure we generally block them; we give them a good backing; that is on heavy pressure. Of course, we have pressure that runs pretty high in the city of Los Angeles, and in more places we have very low pressures. In moderate pressures we don't pay much attention to it at all. We have fastened valves with bell flanges to the ends of sheet iron pipes, and have used cement in such instances; did not require anything else but cement to hold the valves in place; we generally used the clear cement, making a solid joint of them. There is a straight plug and a tapered plug, but in the majority [83] of the city water works plugs they are tapered, with the small end in. They use those for lead joints so if they start pounding on them they would come out, but where they use cement, they use them just the same.

Q. Do you find difficulty at any time in separating joints made with cement?

A. Well, we haven't had very much occasion at cementing them. We have lowered pipe which we had to cut the cement out of to lower it. We had to cut the joint almost all out to lower the pipe; that is, we had a case of lowering some 36-inch pipe on Hoover Street, cast iron, that we had to cut the

(Testimony of John Mitten.)

cement mostly all out of the joint before it would move.

Q. Is there any danger of tendency to leakage in such joints?

A. Not until after the pipe would move. After the pipe would move, we would have to re-run them with lead.

Q. (By the COURT.) As a practical man, by what means is the cement filling put in these joints?

A. Your Honor, I don't understand how you refer.

Q. How do you get cement in there in a horizontal pipe now with the annular space also lying horizontal. How do you get cement in there?

A. I have always had the cement in one hand and caulked it back with a punch in the other hand. I do it by hand. There is no way of pouring it in. I have never seen it poured in. We used clear cement. but not dry cement, just damp, your Honor, so it would stick together, not too wet, and the men, they mixed the cement for us on the ditch, give it to us dry. We always had a can of dry cement down in the hole, down in the ditch, and make it to suit ourselves.

We have secured on some connections, gates or valves [84] upon the ends of pipes by cement. We have put them on by cement, lots of them, and fastened to the ends of cast-iron and sheet-iron pipes, anything that comes along.

The cement seems to hold equally well. It has proven faithful to our job.

(Testimony of John Mitten.)

This making of cement joints is not a new thing, no, not very new; I have been at it for the last ten years.

As to the holding power of cement on iron for ordinary pressure, it is all right: it is good; we made cement joints eight or nine years ago, and they are still in the ground yet.

On Cross-examination.

On our cast-iron pipe ends there is generally a bead, and the other end is a bell and spigot end. There is what we call a "lead lock." Inside the bell there is a sort of groove running around on the inside of the bell, a groove that lead will run into. I cannot remember any particular place within the last eight or ten years where this construction was used in Los Angeles; we have left lots of them there, but I don't know how long they stayed there without having pipe run on ahead of them. We have left jobs that way, you understand; I am not saying they were permanent jobs, but the water was turned into them until we come back to fix them over again—come back to put them on some more pipe, if that is what you are getting at.

I have not put on one of these valves without blocking it.

Not for a place in the system, but as an end we have put on what we call the dead end, run to a dead end. We have some valves on the dead ends, yes; that is what we call a valve, what you call a gate.

I remember we have put gates on dead ends. Of

(Testimony of John Mitten.)

course, [85] the city of Los Angeles has grown so fast they have not stayed there very long before some other gang might have come along and extended pipe further from that gate.

Q. Well, what I am talking about is a permanent dead end.

A. I don't suppose there is. At a permanent dead-end we would not put a valve on. A valve is a little too expensive to run to a dead-end and let it stay there.

As long back as I remember fastening a valve on the end of a pipe by means of a cement joint without block it, was only a short time ago; it is not over two months ago.

I can't just remember any such instance two years ago.

Q. Did you ever put a valve with a flange shape like that on the end of a pipe? (Indicating device.)

A. How do you mean? This would be on the valve, do you mean?

Q. Yes, put your pipe on the inside here, have a flange in this shape.

A. No, I never did.

Q. Would you think that would hold if it were placed on the end of a pipe and filled in with cement here a half an inch thick?

Q. (By the COURT.) Do you think it would hold under pressure?

A. Well, your Honor, it would depend how much pressure would be on that pipe. There is an awful short space there for material to hold there. Even

(Testimony of John Mitten.)

lead I would not gamble on it holding five minutes on a joint like that.

Q. You would be afraid it would blow off?

A. I would be afraid it would blow off; that is, there is not stock enough there—

Q. I understand what you mean, there is not enough [86] hold.

A. The majority of our bells are four inches or four and a half; that would give us four and one-half inches of cement or lead; and we can gamble on our joints; they hold pretty good.

Redirect Examination.

(By Mr. SEVERANCE.)

Q. The strength of such a joint would depend upon the size of the valve and the amount of cement?

A. The amount of cement you could get in there—

Q. Beg pardon.

A. I wouldn't gamble on a joint like that. I wouldn't recommend it at all. There is not enough stock to hold it to my idea.

Testimony of George Sidney Binckley (Recalled).

GEORGE SYDNEY BINCKLEY, recalled.

Redirect Examination.

(By Mr. SEVERANCE.)

Q. I want to draw to your attention complainant's exhibit valve, "Complainant's Commercial Valve" and ask you to—

A. I did not know at the moment—at the moment I did not know whether this was complainant's or defendant's valve.

(Testimony of George Sidney Binckley.)

Recross-examination.

(By Mr. MONTGOMERY.)

Q. Is there any additional element in the Crane valve that is not contained in the Kellar patent?

A. I presume that counsel refers to the groove on the interior of the bell in the Crane valve; that, however, is not an element which is recognized in the claim; it is not mentioned in the claim; and I would not consider that as an element in in the structure itself. It is a detail—a structural detail which may or may not have a [87] practical importance. It may have a function where used with lead; it undoubtedly has a function where used with cement; its function is questionable.

George C. Martin, for Plaintiff (in Rebuttal).

GEORGE C. MARTIN, called in rebuttal on behalf of plaintiff, testifies:

I have heard the testimony of Mr. Binckley. I don't agree with Mr. Binckley in the conclusions that he has drawn; I don't in fact, agree with the premise he starts with; I have examined the patents and my conclusion is just contrary from his, that instead of being anticipatory patents, the evidences of their uses our device superseded. I am simply explaining that from an examination of these patents, the conclusion I draw is that these were steps, some of them, at least, in an art which pointed in no ways at all to the step which we took, that the step which we took was a departure from any of the practices. For instance, what I mean by that, in this Hassall

(Testimony of George C. Martin.)

patent, the first one that was cited, this man says this pipe joint is very effective when the same is not exposed to much strain or pressure. Now, we have discovered—of course, that was in a pipe joint, that the practice is quite the contrary, that it makes a joint for a gate which is very effective.

Q. Yes, but at the same time, if the common bell and spigot connection were an old one, in the art, it would be impossible to get a patent on it.

A. Oh yes, of course, and my interpretation of our patent is not that it is a patent in any sense of the word upon a bell and spigot joint. Our patent is a patent on the combination of a gate, and I might say, I distinguish possibly—I would like to distinguish a little more clearly the difference between a gate and a valve, and a gate valve, concerning which a great deal of Mr. Binckley's testimony concerns.
[88]

Q. And yet the patent says there is no particular importance in the form of the valve, does it not?

A. Yes, but all of these patents—for instance, in the Crane, they are good samples, and in the city water department, and so forth, are what we describe and what we describe in the art and in commerce as a gate-valve; that is a by-pass valve, a valve in a continuous line, a bell end on both ends. In our patents, there must be several elements which are absent in those devices because we have a flange and opening, a pipe, cementitious filler, and a means for cutting off a water flow, and the cementitious

(Testimony of George C. Martin.)

filler comprising the means to hold the gate on, which is not the case with a gate-valve, because it remains in place in any event.

Q. Still the gate-valve must use the same elements or must use some additional elements?

A. That is just exactly the hole point which I meant to bring out. For instance, in these gate-valves it has been shown that the flanges in the gate-valves have been provided with grooves for either lead or cement. Now, the point is that the inventors who manufactured them did not, in fact, conceive that cement would hold as a filler without some additional means until Mr. Kellar's invention.

Q. That is so far as the patent art shows?

A. So far as the patent art shows, yes, or so far as the practice, all of the gates and hydrants used, Boynton's and Crane's and Fairbank's used a grooved gate.

All of these valves such as the Crane valve and the commercial valves of to-day are all and always have been provided with some means additional to a straight valve, or a valve with a cementitious filler for holding the valve onto the end of the pipe. Usually, as testified to by your witness, Mr. Mitten, both male and female ends are provided with means, the spigot end is usually provided with a bead around the end and the bell end with a groove as shown, in fact, in all of these. [89]

Q. Although he pointed out placing the valves equally well on these sheet metal pipes where they did not have a bead on the spigot end of the pipe.

(Testimony of George C. Martin.)

A. No, they have a bead there in the valve; as a matter of fact, I know from my knowledge of the art that they usually flare the end where they do that. These valves all show the grooved bell. I say they are also shown in the catalog.

Q. (By Mr. SEVERANCE.) Would you want to hold then that those devices even though they had some additional features and still had the same elements; would not infringe on your patent if they were subsequent to it rather than prior?

A. The use, for instance, of a gate-valve as the Crane gate-valve is not an analogous use to our use at all. We, ourselves, buy and sell Crane valves from Crane, but they are not used in line with out gates. The Crane valve as here depicted in the Crane catalog as introduced in evidence would not be an infringement of our patent. That sort of a valve wouldn't be put on the end of a line, it is a valve or gate that is to be inserted in a continuous line. The witness Mitten was talking about a stop at the temporary end of a line; until, as he suggested, another lot of workmen instructed to do so would come along and take it out and continue the line.

They put the valve end on the end of a line with the cement abutment or something back of it, so that they could continue the line at a later date. Of course, there it simply became a joint; obviously they wouldn't put a gate-valve in the end of a line and then plug up the hole.

It is stipulated that Plaintiff's Exhibit No. 6 may be introduced in evidence for the purpose of showing the cement standpipe; [90] the construction of it, to show the end of the pipe in which the former device was fitted, and over which now the present commercial device fits.

Sep. 13, 1916.

It is stipulated that the foregoing be approved by the Court under Equity Rule 75.

CHARLES C. MONTGOMERY,
Solicitor for Plaintiff.
FREDERICK S. LYON,
Solicitor for Defendants.

Approved:

EDWARD E. CUSHMAN,
District Judge.

[Endorsement]: No. B-65. United States District Court, Southern District of California, Southern Division. Kellar-Thomason Company, Plaintiff, vs. Frank P. Snow et al., Defendants. In Equity. Condensed Statement of Evidence Under Equity Rule 75. Filed Sep. 14, 1916. Wm. M. Van Dyke, Clerk. By T. F. Green, Deputy Clerk. Frederick S. Lyon. 504-7 Merchants Trust Building, Los Angeles, Cal., Solicitor for Defendants. [91]

**Plaintiff's Exhibit No. 1—Certified Copy of Letters
Patent No. 1,016,159, Issued to George E. Kellar.**

No. 1,016,159

THE UNITED STATES OF AMERICA.
TO ALL TO WHOM THESE PRESENTS
SHALL COME:

WHEREAS, George E. Kellar, of Covina, California, has presented to the Commissioner of Patents a petition praying for the grant of letters patent for an alleged new and useful improvement in irrigating connections. He having assigned his right, title and interest in said improvement to Kellar-Thomason Manufacturing Company, of Covina, California, a corporation of California, a description of which invention is contained in the specification of which a copy is hereunto annexed and made a part hereof, and has complied with the various requirements of law in such cases made and provided, and

WHEREAS, upon due examination made the said claimant is adjudged to be justly entitled to a patent under the law.

Now, therefore, these letters patent are to grant unto said Kellar-Thomason Manufacturing Company, its successors or assigns, for the term of Seventeen years from the thirtieth day of January, one thousand nine hundred and twelve, the exclusive right to make, use and vend the said invention throughout the United States and the Territories thereof.

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed at the city of Washington, this thirtieth day of January, in the year of our Lord, one thousand nine hundred and twelve, and of the Independence of the United States of America the one hundred and thirty-sixth.

[Seal]

C. C. BILLINGS,
Acting Commissioner of Patents. [92]

G. E. KELLAR.
IRRIGATING CONNECTION.
APPLICATION FILED OCT. 29, 1910

1,016,159.

Patented Jan. 30, 1912.

Fig. 1.

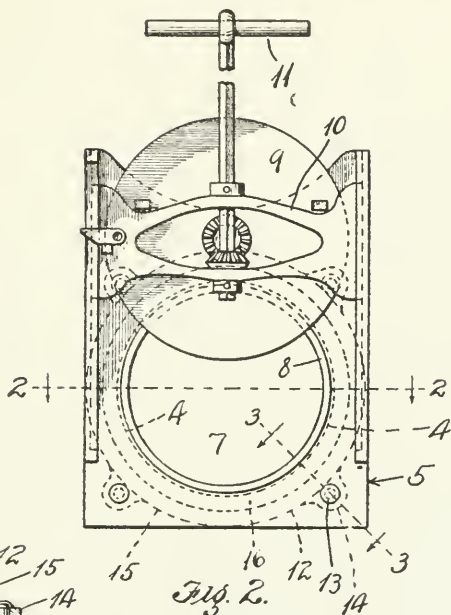


Fig. 3.

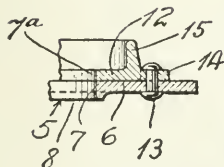
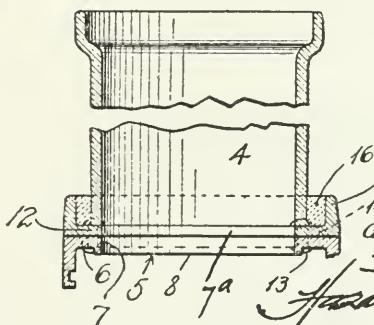


Fig. 2.



Witnesses.
E. P. Pelland
F. D. Amador

Inventor:
George E. Kellar.

By *Frank A. House*
Attys.

UNITED STATES PATENT OFFICE.

GEORGE E. KELLAR, OF COVINA, CALIFORNIA, ASSIGNOR TO KELLAR-THOMASON MANUFACTURING COMPANY, OF COVINA, CALIFORNIA, A CORPORATION OF CALIFORNIA.

IRRIGATING CONNECTION.

1,016,159.

Specification of Letters Patent.

Patented Jan. 30, 1912.

Application filed October 29, 1910. Serial No. 589,653.

To all whom it may concern:

Be it known that I, GEORGE E. KELLAR, a citizen of the United States, residing at Covina, county of Los Angeles, State of California, have invented new and useful Improvements in Irrigating Connections, of which the following is a specification.

This invention relates to irrigating connections.

In irrigating systems pipes such as vitrified pipes are frequently used and on the end of the pipe a gate or valve is placed to control the flow of the water through the pipe. These pipes are of a simple form and constructed in sections so that the end of one section fits into the mouth of the next section. For this reason the end of the pipe is perfectly plain and of cylindrical form and on this account is not well adapted for attaching a gate or valve constructed of metal.

The object of this invention is to provide improved means for attaching a gate or valve to the end of such a pipe.

In the drawing forming a part of the annexed specification, Figure 1 is a front elevation of a gate which is attached to a pipe section in accordance with my invention. Fig. 2 is a horizontal section taken through the gate and through the pipe on the line 2—2 of Fig. 1, certain parts being broken away. Fig. 3 is a section taken on the line 3—3 of Fig. 1.

Referring more particularly to the parts 4 represents a section of vitrified pipe or similar pipe to the small end of which the gate 5 is attached. This gate 5 may be of any suitable construction comprising a face plate 6 having an opening 7 therethrough, around the edge of which a suitable seat 8 is formed for the disk 9 of the gate. This disk 9 is mounted on a slide 10 and is adapted to be operated by the handle 11 so as to come tightly upon the seat 8. The specific construction of the gate is immaterial for the purpose of this invention, how-

ever, except that the invention is applicable to gates having a face plate 6 as described.

In order to attach the gate to the pipe 4 I attach a ring 12 to the rear side of the face plate by means of suitable fastening devices or rivets 13 passing through lugs 14 provided on the ring for this purpose. This ring has an opening 7^a adapted to register with the opening 7 and at its outer edge the ring has an outwardly projecting flange or bead 15. The openings 7 and 7^a are of the same diameter as the inner diameter of the pipe.

In attaching the gate to the pipe the end of the pipe is placed against the outer face of the ring 12 so that the bore of the pipe registers with the openings 7 and 7^a. The annular flange 15 is of enlarged diameter so that an annular space is formed between the end of the pipe and the flange. With the pipe applied to the gate in this position I fill this annular space with a filler 16 of cement or a similar composition, which is adapted to set and harden in place. After this cement 16 hardens the gate will be found to be securely fastened to the pipe for the cement attaches itself to the outer surface of the pipe and the inner surface of the flange 15.

What I claim is:—

A gate having a plate with an opening through which water may flow, a pipe having its end abutting against said plate adjacent to said opening, said plate having an outwardly projecting flange encircling the end of said pipe and forming an annular space between the end of said pipe and said flange, and a cementitious filler in said annular space securing said plate to said pipe.

In witness that I claim the foregoing I have hereunto subscribed my name this 18th day of October, 1910.

GEORGE E. KELLAR.

Witnesses:

F. D. AMMEN,
EDMUND A. STRAUSE.

[Endorsed]: No. B-65. Eq. Kellar-Thomason Co. vs. Frank P. Snow et al. Complainant's Exhibit No. 1. Filed May 17, 1916. Wm. M. Van Dyke, Clerk. T. F. Green, Deputy. Hazard & Strause, Patents, 639 Citizens Nat. Bank Bldg., Los Angeles, Cal. [95]

Plaintiff's Exhibit No. 4—Photograph.

The "KT" Gate (Type P)

This gate is the same as our Type G Gate with a flange cast on the back for connecting to a concrete or vitrified pipe. The connection is made by filling the annular space between the flange and outside of the pipe with cement. This makes a substantial construction for use on high heads and is cheap and easily installed.

B-65-89
Keller-Thompson &

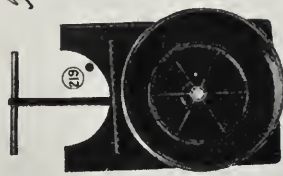
Frank P. Snow & Co.
Exhibits Exhibited

No. 4

Filed May 17
1916

Wm. M. Standish
Clerk

By J. J. Green
Deputy



Back View of Type P Gate.



Type P Gate attached to joint of concrete pipe.

(22)

When better gates and valves are made, "KT" will make them.

Prices of "KT" Type P Gates

No.	Weight	Black
6.....	24.0 lbs.....	\$ 4.50
8.....	40.5 lbs.....	5.00
10.....	45.0 lbs.....	6.00
12.....	65.0 lbs.....	7.50
14.....	89.0 lbs.....	9.75
16.....	120.5 lbs.....	12.50
18.....	140.5 lbs.....	18.00

Prices F. O. B. Factory. Subject to change without notice.
Order by giving Type and Number.

Plaintiff's Exhibit No. 6—Photograph.



[Endorsed]: K. T. Co. vs. Snow et al. No. B-65-
Eq. Plffs. Exhibit No. 6. Filed May 18, 1916.
Wm. M. Van Dyke, Clerk. By T. F. Green, Deputy
Clerk.

**Defendants' Exhibit "A"—Excerpts from Volumes
72 and 98, International Library of Technology.**

**Vol. 98—INTERNATIONAL LIBRARY OF
TECHNOLOGY**

§ 88, page 31, paragraph 32: "The joints in sewer pipe are made by the bell and spigot method, as for cast-iron water-pipe, the space being filled with cement of composition."

**Vol. 98—INTERNATIONAL LIBRARY OF
TECHNOLOGY,
Copyright 1907.**

§ 88, page 34, paragraph 35: "CEMENT JOINTS FOR SEWER PIPES." The joints in a sewer are the weakest part of the structure, because they allow the line to settle at the joint and thus may separate adjacent lengths of pipe. The joints are not water-tight, both because the joining material is pervious and because laborers seldom pack the joint full. For this reason, more or less water comes into the sewer in wet ground; this extra water taking up room, and if pumping of the sewage is necessary, largely increases the cost. In dry ground, on the other hand, the liquid leaks out and pollutes the soil, leaving the solids behind to choke up the sewer.

The usual joint is made of oakum and cement as shown in Fig. 13. The oakum packing, or gasket, is first laid around the spigot end as the latter enters the bell and is then tamped back to the bottom of the joint. The rest of the space is then filled with cement mortar mixed 1:1, enough mortar is pro-

vided at each joint to have it extend out on the pipe as shown. This cement should not be soft but rather moist, so that it can be tamped or rammed into the joint space thoroughly. For the triangular space outside, the cement is best put on directly, with the hands either bare or protected by rubber gloves.

Sometimes pipes are joined without a gasket, the entire space being filled with cement. In this case the mortar is spread in the socket on the inner surface as it lies in place in the trench. The spigot is then entered as high up as possible [97] pushed all the way back, and pressed down in the mortar. This method is more rapid, but the pipes are less likely to be concentric and there is more liability that the cement may work up into the inside of the pipe and form miniature dams against the flow."

Vol. 98, INTERNATIONAL LIBRARY OF TECHNOLOGY.

§ 85, page 17 and 18, paragraph 22: Partly quoted.

"The narrow end S of the pipe is called the spigot; the enlarged end AB the bell or hub. The spigot S of one length fits loosely into the bell of the other, the space RT being filled partly with oakum and partly with lead."

Vol. 72, INTERNATIONAL LIBRARY OF TECHNOLOGY.

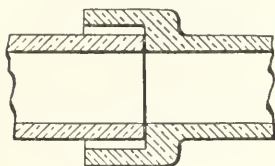
§ 47, page 25, last part of paragraph 48: "The house drain b should join the sewer above the line d, as shown. If there is danger of water backing up in the sewers, the mouth of b should be protected by a light hinged flap valve as shown."

Vol. 72, INTERNATIONAL LIBRARY OF TECHNOLOGY.

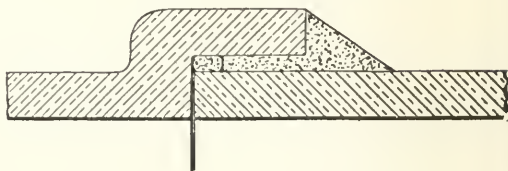
§ 47, page 52, paragraph 95: “Defective joints are probably the most common cause of chokage in earthenware drains. Fig. 27 shows one of them. The spigot end a should have been raised until the axis of the pipe was in line with that of the other. This would prevent the cement of which the joint is made, being pushed through, as at b and dripping to the bottom of the pipe, as at c, thereby forming an obstruction to the flow of the sewage.” [98]

Vol. 98 §88.

Page 32 Fig. 11

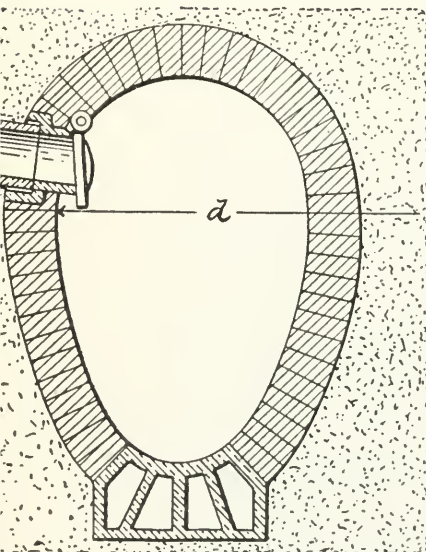


Page 34. Fig 13.

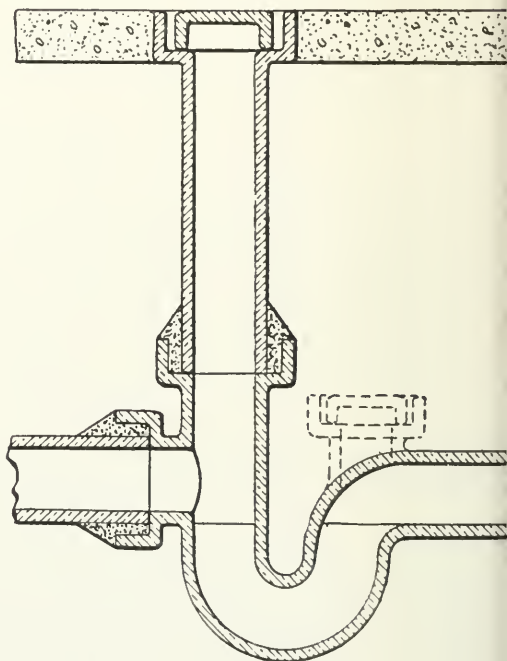


Vol. 72. §47.

Page 24 Fig. 6.



Page 45. Fig 22.



[Endorsed]: K. T. Co. vs. Snow et al. No. B-65
Eq. Defd. Exhibit "A." Filed May 17, 1916. Wm.
M. Van Dyke, Clerk. By T. F. Green, Deputy Clerk.

**Defendants' Exhibit "B"—Letters Patent Issued to
W. Hassall—Joint for Pipes for Water, Gas,
Electric Wires, etc.**

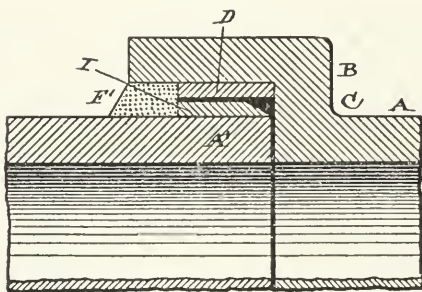
(No Model.)

W. HASSALL.

JOINT FOR PIPES FOR WATER, GAS, ELECTRIC WIRES, &c.

No. 318,616.

Patented May 26, 1885.



WITNESSES

Frederick N. Rosenbaum.
Carl Kerk

INVENTOR

William Hassall
By his Attorneys
Boyd & Rogers

UNITED STATES PATENT OFFICE.

WILLIAM HASSALL, OF BEESTON, COUNTY OF NOTTINGHAM, ENGLAND.

JOINT FOR PIPES FOR WATER, GAS, ELECTRIC WIRES, &c.

SPECIFICATION forming part of Letters Patent No. 318,616, dated May 26, 1885.

Application filed August 1, 1884. (No model.) Patented in England March 4, 1884, No. 4,357.

To all whom it may concern:

Be it known that I, WILLIAM HASSALL, of Beeston, in the county of Nottingham, Kingdom of England, have invented certain new and useful Improvements in Joints for Pipes for Water, Gas, Electric Wires, and the like, (for which I have received Letters Patent for Great Britain, dated March 4, 1884, No. 4,357,) of which the following is a specification.

10 This invention relates to an improved joint for water, gas, and sewage pipes, and for pipes for conveying compressed air, inclosing electric conductors, and other purposes.

15 The figure in the accompanying drawing is a vertical section of my improved pipe-joint. Similar letters of reference indicate corresponding parts.

20 In the drawing, A represents one pipe-section, which is provided with a socket, B, and a shoulder, C, at the inner end of the socket. A' is the adjoining pipe-section, the spigot end of which is inserted into the socket B and tightly fitted thereto by two concentric rings, D and I, which are either cast by means of a
25 cylindrical mold into the socket B and around the spigot end of the pipe A' or placed loosely therein, as desired. Between the adjoining surfaces of the rings D and I a plastic cement—such as mastic or like cement—is placed, by
30 which a tight joint is formed. The inner edge of the ring I is made beveled, so as to prevent the cement from being forced forward into the socket B when the pipes are being pressed together. The surplus cement fills the annular
35 space formed between the beveled edge of the

inner ring and the outer ring, as shown in the drawing. This pipe-joint is very effective when the same is not exposed to much strain or pressure.

In the drawing a ring or band, F', of Portland or other cement, is cast around the outer ends of the rings D and I, said ring closing the mouth of the socket. For metal pipes the rings may be respectively bored and turned in the lathe to insure accuracy.

45 For other pipes they may be made of earthenware or vitreous composition, vulcanite, or other suitable material, according to the purpose for which the pipe is required.

Having thus described my invention, I 50 claim as new and desire to secure by Letters Patent—

The combination of a pipe-section provided with a straight socket having a square shoulder at its inner end, a ring within said socket concentric therewith, a spigot-section 55 provided with an exterior ring adapted to fit within the socket-ring, the inner edge of said spigot-ring being beveled opposite the straight face of the socket-ring, and a ring or band of cement within said socket above said rings, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

WM. HASSALL.

Witnesses:

WM. WHITTELY,

M. SHAW,

Both of Nottingham.

[Endorsed]: K. T. Co., vs. Snow et al., No. B-65—
Eq. Defd. Exhibit "B." Filed May 17, 1916. Wm.
M. Van Dyke, Clerk. By T. F. Green, Deputy Clerk.

Defendants' Exhibit "C"—Letters Patent Issued to
T. & J. Galvin, for Hydrant.

(No Model.)

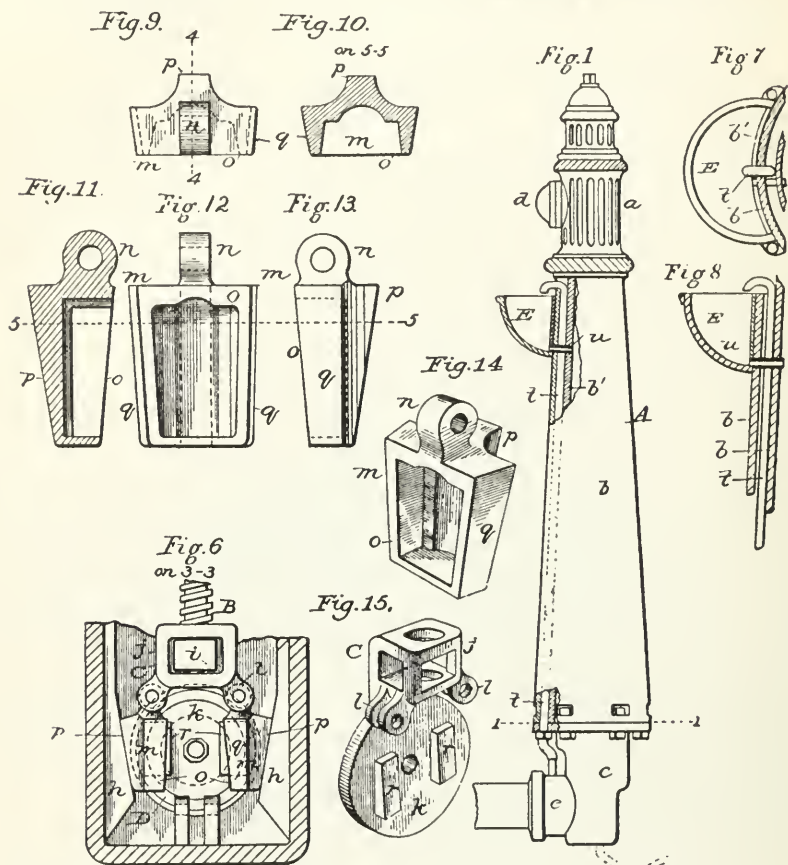
T. & J. GALVIN.

2 Sheets—Sheet 1

HYDRANT.

No. 337,945.

Patented Mar. 16, 1886.



Witnesses

James I. DeHamel
Walter I. Dodge

Inventors:

Thaddeus Galvin
John Galvin
by Rodgerdon
Attys

(No Model.)

2 Sheets—Sheet 2.

T. & J. GALVIN.

HYDRANT.

No. 337,945.

Patented Mar. 16, 1886.

Fig. 2.
on 1-1.

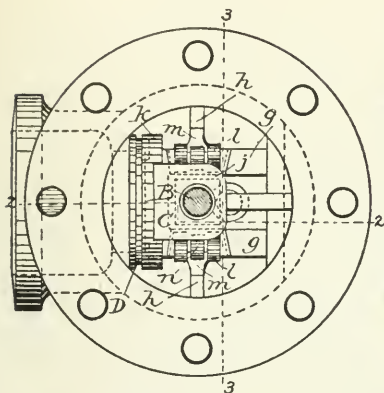


Fig. 3.
on 1-1.

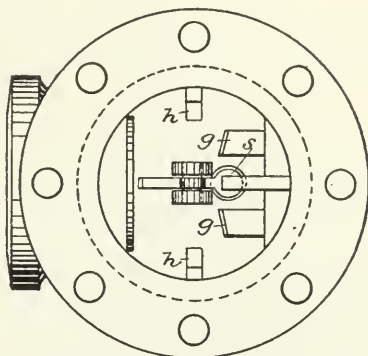


Fig. 4.

on 2-2

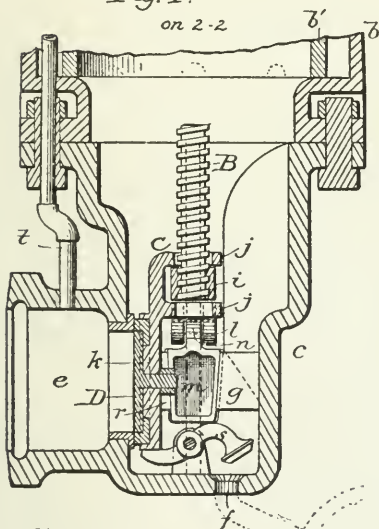
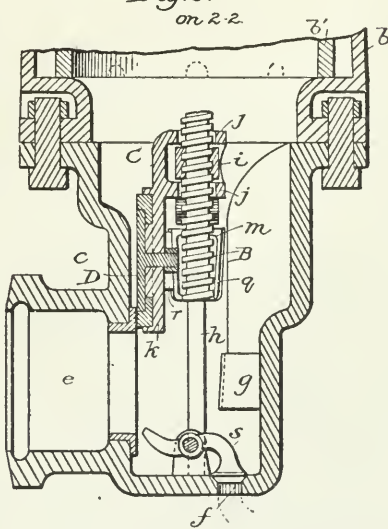


Fig. 5.

on 2-2



Witnesses:

James J. O'Connell
Walter S. Dodge

Inventors:

Thaddeus Galvin,
John Galvin,
by Rodgerson,
their Attys

UNITED STATES PATENT OFFICE.

THADDEUS GALVIN AND JOHN GALVIN, OF DETROIT, MICHIGAN.

HYDRANT.

SPECIFICATION forming part of Letters Patent No. 337,945, dated March 16, 1886.

Application filed October 30, 1885. Serial No. 181,399. (No model.)

To all whom it may concern:

Be it known that we, THADDEUS GALVIN and JOHN GALVIN, of Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Hydrants, of which the following is a specification.

This invention relates to hydrants; and it consists in various features hereinafter set forth.

In the drawings, Figure 1 is a side view, partly in section, of a hydrant constructed in accordance with our invention; Fig. 2, a horizontal section on the line 1 1; Fig. 3, a similar view with the gates of the valve removed; Figs. 4 and 5, sectional views on the line 2 2, Fig. 2, showing the valve open and closed; Fig. 6, a section on the line 3 3 of Fig. 2, showing the valve closed; Figs. 7 and 8, detail views of the drinking-basin; and Figs. 9 to 15 are views illustrating certain details.

The invention relates to the construction of the hydrant proper, the valve, and the drinking-basin.

Referring to the drawings, A, Fig. 1, indicates the hydrant proper, consisting of an upper section or cap, *a*, an intermediate chamber, *b*, and a lower or valve chamber, *c*, said parts being secured together by bolts, as shown, or in any other equivalent manner. The upper section or cap, *a*, may be made more or less ornamental in appearance, and is provided with a lateral outlet, *d*, and with a hole in its top, through which the valve-stem passes, as shown in Fig. 1. The intermediate section, *b*, is made tapering, largest at its base, so that the upheaval of the ground by the frost will not cause a similar movement of the hydrant.

The portion or section *b* is made of two thicknesses of metal, the inner shell, *b'*, containing the valve stem and rod and permitting access to the valve-chamber *c*, as shown in Figs. 1, 4, and 5.

The valve-chamber *c* is provided with a lateral supply-opening, *e*, and with an outlet or discharge opening, *f*, in its bottom, as shown in Figs. 3, 4, and 5. As shown in said figures, the interior of the valve-chamber is provided on its rear with two lugs, *g*, and on its side with lugs *h*, the faces of the lugs *g* and *h* being inclined, as shown in Figs. 2, 3, 4, 5, and 6.

B indicates the valve-stem, the lower end of

which is threaded and passes through a fixed nut, *i*, carried by a yoke or frame, C.

As shown in Figs. 4, 5, 6, and 15, the yoke C consists of a substantially-rectangular framing, *j*, in which the nut *i* is placed, and by which it is prevented from turning. The framing *j* projects laterally from a plate, *k*, to which is secured the sliding gate or disk D, the latter being attached to the yoke C in any usual or convenient manner. The upper and lower arms of the framing *j* are perforated to allow the screw-stem B to pass freely there-through.

From the lower arm, *j*, of the yoke C ears or lugs *l* project—two on each side—which ears are perforated to receive a pin or bolt upon which the wedges *m* are hung, the wedges having an ear, *n*, to fit between those carried by the yoke, as shown in Figs. 4 and 6.

The wedges are illustrated detached in Figs. 9 to 14, inclusive. They are made hollow, or are recessed, to render them light, but are so designed as to give the requisite strength, as will be seen by referring to the drawings. Their front and rear faces, *o p*, are tapering or beveled, as are also their side faces, *q*. As shown in the drawings, the rear face, *p*, is not as wide as the front face, *o*, but is of about the same width as the ear *n*; but this is not a matter of importance. The face *p* moves in contact with the incline *h*, and the faces *q* move between the inclined lug *g* and a lug, *r*, upon the face of the plate *k* of yoke C. From this construction it follows that as the screw-stem B is turned it causes the yoke C or its framing, *j*, carrying the nut *i*, to descend or ascend, according to the direction of rotation. The nut *i* should be of such shape and size as to prevent its turning in the framing *j*.

Assuming that the screw-stem B be turned to the left, the yoke C and the wedges *m*, carried thereby, will descend, the latter striking against the inclines *g* and *h*, and being urged thereby toward each other and toward the orifice *e*. This action is such as to cause the gate D to be held tightly against the mouth of the inlet *e*, and thereby to secure a perfectly tight joint. As the valve-gate D descends and shuts off the water, its lower edge strikes against the tail of a pivoted valve-plug, *s*, and tips or raises the latter, thus allowing the waste water to escape through the opening *f*.

337,945

This also serves another purpose, as will be presently explained.

It is often desirable that a basin or drinking-fountain be combined with the hydrant or plug, which basin shall be supplied from the same main as the hydrant. Such an arrangement is shown in Figs. 1, 7, and 8. Between the two shells *b b'* is a pipe, *t*, which connects with or is tapped into the lateral branch of the valve-chamber *c*, and which extends outward through shell *b* at its upper end, as shown. Cast with or attached to the front side of the shell *b* is a basin, *E*. A waste-pipe, *u*, connects the basin *E* with the interior of shell *b'* and discharges the water from the basin into the interior of the hydrant, where it falls into chamber *c* and is discharged through opening *f* into a sewer or other receiver. The supply of water to pipe *t* may be regulated or controlled by means of a valve placed in any convenient or desirable position. It is preferred, however, that the pipe *t* be made so small as to prevent any undue waste of the water when no valve is employed.

An advantage of the construction of the hydrant above set forth is that the entire valve mechanism can be moved bodily up and out through the upper end of the inner shell, *b'*, without removing the earth or the outer casing of the hydrant.

The outlet-pipe *u* may be omitted, and the waste water discharged into the space between the two shells *b* and *b'*. In that case it would be necessary to perforate the lower end of the shell *b'*, as indicated in dotted lines in Figs. 4 and 5, so as to allow the water to escape from between the two shells into the interior of the valve-chamber *c*, and thence through opening *f*; but the plan illustrated and above described is deemed preferable, because it insures a body of confined air between the external atmosphere and the water, and naturally lessens danger of freezing.

The valve-gate proper may be attached to the plate *k* by a joint permitting the gate to adapt itself to its seat.

We prefer to, and in practice do, construct the hydrant proper of only one tapering casing, the inner one, *b'*, being omitted, and we therefore do not wish to restrict ourselves to the use of the two concentric casings.

It will of course be understood that the main is laid below the frost-line, and that the

upheaval occurs only from said line upward. Now, to prevent the body or shell from being lifted with the earth, it is necessary that said body extend down to or below the frost-line, or that it extend very nearly thereto and be firmly secured to the main or the bend extending below said line, and it is likewise necessary that the portion of the shell or case which is below ground shall be tapered to such an extent as will insure the withdrawal of the earth therefrom as said earth rises.

Having thus described our invention, what we claim is—

1. A hydrant-body composed of two concentric shells, separated, as shown and described, in combination with a basin secured to the outer shell, a supply-pipe for said basin, between the shells, and a discharge-pipe connecting the basin and the interior of the hydrant-body.

2. In combination with chamber *c*, having lugs or inclines *g* and *h*, yoke *C*, consisting of frame *j* and plate *k*, nut *i*, carried by frame *j*, screw-stem *B* passing through nut *i* and frame *j*, gate *D*, carried by plate *k*, and pivoted wedges *m*, carried by the frame *j*, as shown.

3. In combination with chamber *c* and lugs *g* and *h*, yoke *C*, consisting of open frame *j*, plate *k*, and ears *l*, wedges *m*, pivoted in the latter, stationary nut *i*, carried by frame *j*, and disk *D*, secured to plate *k*, as shown.

4. The herein-described hydrant and drinking-fountain, consisting of a hydrant-body, a main gate controlling admission of water thereto, an outlet-opening from the interior of the hydrant-body, a valve controlling said outlet and adapted to be opened by the closing of the main gate, an external basin, a supply-pipe for said basin connected with the water-supply outside of the main gate, and a discharge-passage connecting the basin and the interior of the hydrant body.

5. In combination with hydrant-body *A*, inlet *e*, gate *D*, outlet *f*, pivoted valve *s*, basin *E*, supply-pipe *t*, and discharge pipe *u*, connecting the basin and the interior of the hydrant-body, all arranged as shown.

THADDEUS GALVIN
JOHN GALVIN

Witnesses:

JOHN W. STRACKBEIN.
W. S. ARMITAGE.

[Endorsed]: K. T. Co., vs. Snow et al., No. B-65—
Eq. Defd. Exhibit "C." Filed May 17, 1916. Wm.
M. Van Dyke, Clerk. By T. F. Green, Deputy Clerk.

**Defendants' Exhibit "D"—Letters Patent Issued to
H. H. Burritt for Valve.**

(No Model.)

H. H. BURRITT.
VALVE.

2 Sheets—Sheet 1

No. 515,514.

Patented Feb. 27, 1894.

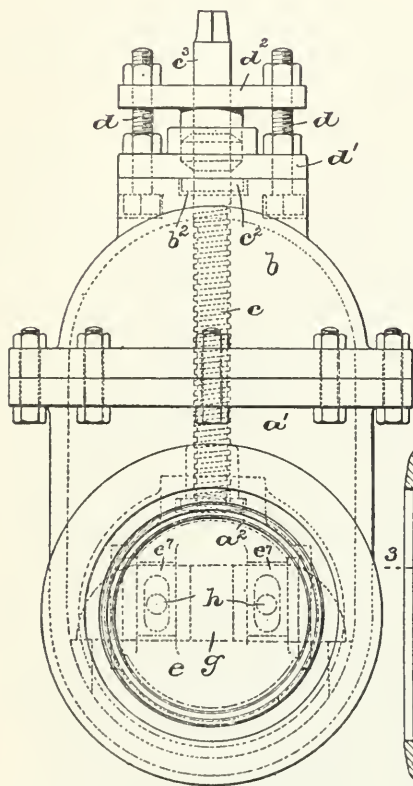


Fig. 1

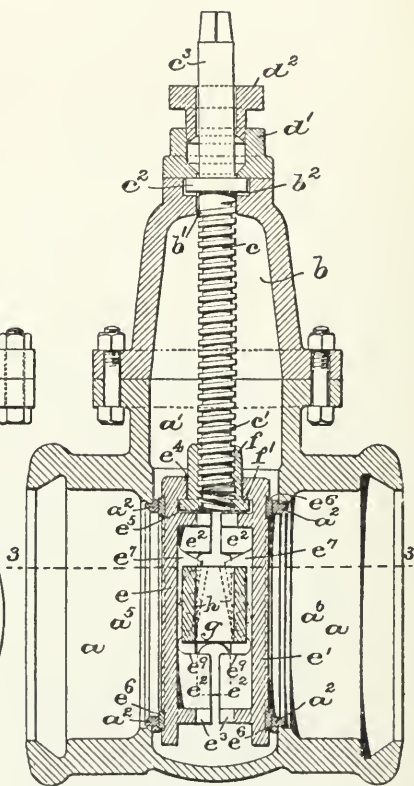


Fig. 2

WITNESSES:

Harvey H. Burritt,
Frederick Schluter.

INVENTOR:

Harvey H. Burritt,
BY *Frederick Schluter, ATT'Y.*

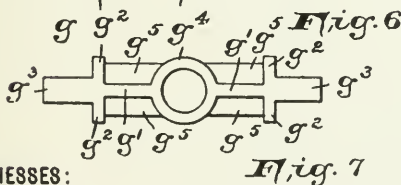
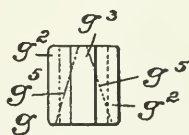
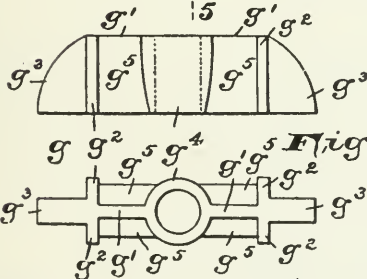
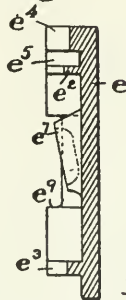
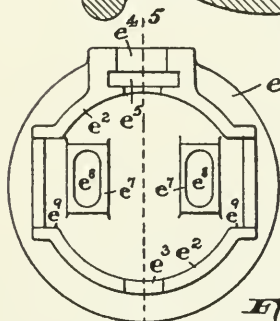
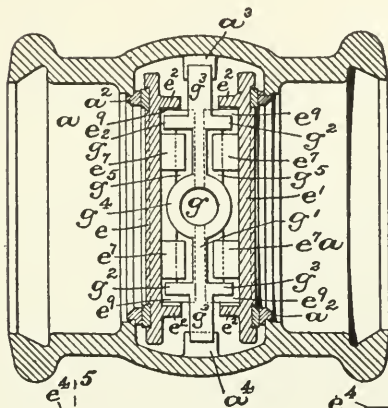
(No Model)

2 Sheets—Sheet 2.

H. H. BURRITT.
VALVE.

No. 515,514.

Patented Feb. 27, 1894.



WITNESSES:

Stro. Marsh
Fred Schlueter

INVENTOR:

Harvey H. Burritt,
BY Fred C. Fraentzel, ATT'Y.

UNITED STATES PATENT OFFICE.

HARVEY H. BURRITT, OF NEWARK, NEW JERSEY, ASSIGNOR TO THE BURRITT MANUFACTURING COMPANY, OF NEW JERSEY.

VALVE.

SPECIFICATION forming part of Letters Patent No. 515,514, dated February 27, 1894.

Application filed July 28, 1893. Serial No. 481,697. (No model.)

To all whom it may concern

Be it known that I, HARVEY H. BURRITT, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Valves; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification

My present invention has for its primary object to provide a valve in which, by a slight movement, after the valve is closed, the valve disks are brought to firmly bear against their valve seats, whereby the valve is securely closed.

The invention therefore consists in the general construction of valve herein set forth, as a new article of manufacture, and also in certain novel arrangements and combinations of parts, such as will be hereinafter more fully set forth and finally embodied in the clauses of the claim.

In the drawings herewith accompanying, Figure 1 is an end view of my improved form of valve. Fig. 2 is a longitudinal vertical section of the same, and Fig. 3 is a horizontal section of the valve, taken on line 3—3 in said Fig. 2. Fig. 4 is a view of one side of one of the valve disks, and Fig. 5 is a vertical section of the same, taken on line 5—5 in said Fig. 4. Fig. 6 is a side view of a yoke or cross-bar used in connection with the valve disks in my present form of construction of valve. Fig. 7 is a top view of the same, and Fig. 8 an end view of said yoke or cross bar.

Similar letters of reference are employed in each of the above described views to indicate corresponding parts.

In said drawings, *a* represents the valve case; provided in the top with a suitable opening *a'* upon which is secured in any convenient manner a hollow cap *b*, having a perforation *b'*, which is suitably enlarged, as at *b²*, and as will be clearly seen from Fig. 2. In said perforation or opening *b'* of the cap *b* is rotatively arranged a valve stem *c* provided on its lower portion with a screw-threaded

portion *c'*. On said valve stem and loosely arranged in said enlarged portion *b²* of said opening or perforation *b'*, is an enlargement or collar *c²* formed integral with said valve stem, or said enlargement or collar *c²* may be made in the form of a ring which is slipped upon the stem *c* and then secured thereto in any convenient manner, as will be clearly understood. Secured to said cap *b* by means of suitable bolts *d*, see Fig. 1, is a perforated plate *d'* provided with the usual form of stuffing box *d²*, through which projects the end *c³* of the valve stem for raising or lowering the valve disks and thereby opening or closing the valve. Said plate *d'* which is secured to the top of said hollow cap *b*, forms, with said enlarged portion *b²* of the opening *b'*, a chamber in which said collar *c²* on the valve stem is retained, but is free to rotate therein. This allows of the valve stem *c* to be freely turned in either direction, but prevents the stem from moving upward or downward and holds the stem at all times in its proper position. On the lower end of said screw-threaded valve stem *c*, I have arranged a screw-threaded sleeve *f* provided with a square or angular flange *f'*. In said valve casing *a*, as will be seen from Figs. 2 and 3, are arranged the valve disks *e* and *e'*, each of which is formed on its inner surface, with the inwardly projecting flange *e²*, substantially as illustrated more especially in Fig. 4. Said flanges are provided at the bottom with the grooved portions *e³* and at the top with the grooved portions *e⁴* and the recessed portions *e⁵*, which portions *e³* and *e⁴*, when the said valve disks are in position in the valve case, form openings for the valve stem *c*, while the flange *f'* on the sleeve *f* fits into the recessed portions *e⁵* which prevent said sleeve from turning with said screw *c*, and, when the valve stem is turned, said sleeve which moves up and down upon the screw-thread of the said stem, causes the valve disks *e* and *e'* to be raised or lowered, as the case may be. Each valve disk is provided with a suitable ring *e⁶*, of non-corrosive metal, which forms the face of the disk, said rings *e⁶* coming in close contact with rings *e²* in said valve case, as will be clearly seen from Fig. 3.

Each valve disk *e* and *e'* is provided with

515,514

suitable lugs e' which incline toward the bottom, as will be evident from Figs. 2 and 5, and are hollowed to form an oblong recess e'' in each, as shown more especially in Fig. 4. Arranged between said valve disks e and e' is a yoke or cross bar g , as clearly shown in Fig. 3, and said yoke or cross bar is provided with a central longitudinal rib g' having a centrally arranged opening or hole, as shown in Fig. 7. Near both ends of said rib g' are oppositely projecting arms g'' from which extend longitudinally with said rib g' suitable supports g''' . Between said arms g'' and the collar g^4 formed around said central opening in said yoke or cross bar g are arranged the inclined webs or portions g^5 , as is clearly shown in the plan view in Fig. 7, and as is indicated in dotted outline in Fig. 8. In said valve case a are two oppositely placed lugs or ears a^3 and a^4 , as clearly shown in Figs. 1 and 3, and the purpose of which will be more clearly described hereinafter. Loosely and movably arranged in said oblong recesses in said lugs e' and riding on the said inclined webs g^5 of said yoke or cross bar g , are small balls or rollers h , as indicated in dotted outline in Figs. 1 and 2, which balls or rollers are made of any suitable hard metal, and may be tempered and coppered to prevent them from rusting.

The operation of the device is as follows:—When the valve is closed, as is clearly shown in Fig. 2, said supports g''' of the cross bar or yoke g rest upon the lugs or ears a^3 and a^4 in the valve casing, while the balls or rollers h are tightly wedged in between the inclined webs g^5 of the said cross bar or yoke and the recesses e'' in each disk e and e' . Now, when the valve stem c is turned to raise the valve disks, said sleeve f moves upwardly on the screw-thread c' , whereby said plates are raised, and by bringing the edges e^3 of the herein above mentioned flanges e^2 in contact with the lower edges of the supports g''' on the bar or yoke g , the latter is raised with the disks e and e' to a position within the chambered cap b , thereby permitting a free passage for the water or other liquid to be conveyed through the valve, as will be clearly understood. When the valve stem is turned to close the valve, said disks e and e' and also the yoke or bar g move downwardly, and when the disks have been lowered to such a point that they nearly close the openings a^3 and a^4 in the valve case a , the supports g''' on said bar or yoke will come in contact with the lugs a^3 and a^4 in the valve case, thus holding said bar or yoke in this position. At the same time the disks are permitted to travel still further in their downward course, but said balls or rollers h in the oblong recesses e'' will ride on said inclined webs g^5 of the bar or yoke g , whereby said valve disks e and e' are forced forwardly in opposite directions, causing their facing rings e^2 to closely bind against the rings a^2 in the valve casing a , whereby the valve is firmly closed. Of course it will

be evident that I can dispense with the use of said balls or rollers h , in which case the inclined lugs e' will ride directly upon the inclined webs g^5 , as will be clearly understood; but I prefer to use the balls or rollers h , as in that case there is less friction, and the parts are less liable to rust and stick when the valve has not been used for sometime. It will thus be seen that the mechanism is extremely simple and not liable to get out of order, and the several parts can be easily removed for repairs, when necessary.

Of course it will be evident that certain changes in the arrangement and combinations of parts may be made without departing from the scope of my invention, and I therefore do not wish to limit my invention to the exact form and construction of valve herein shown.

The mechanism herein shown and described is especially well adapted for different classes of valves and especially gate valves, and is also well adapted for the use of valves in hydrants.

Having thus described my invention, what I claim is—

1. In a valve, the combination, with the chamber thereof, of the two-part valve, consisting of valve disks e and e' , each provided with a pair of downwardly inclining lugs having oblong recesses therein, balls or rollers in said recesses, and a bar or yoke between said disks, said bar or yoke having a central opening formed by a collar g^4 , longitudinally arranged ribs extending on opposite sides from said collar, and a pair of inclined webs g^5 on each side of said ribs, against which said balls or rollers ride, substantially as and for the purposes set forth.

2. In a valve, the combination, with the chamber thereof, of the two-part valve disks e and e' , each provided with a pair of downwardly inclining lugs having oblong recesses therein, balls or rollers in said recesses, and a yoke or bar between said valve-disks, having inclined ribs against which said balls or rollers ride, substantially as and for the purposes set forth.

3. In a valve, in combination, with the valve case, provided with oppositely placed lugs or ears a^3 and a^4 , a screw-threaded valve stem, a pair of valve disks, a yoke or bar between said disks adapted to be supported by said lugs or ears a^3 and a^4 , when the valve is closed, and said bar or yoke being adapted to be raised by said disks when the valve is being opened, and means on said bar or yoke and said valve disks for forcing said valve disks forward in opposite directions when the valve is nearly closed, said means consisting essentially of inclined lugs on said valve disks, having oblong recesses, balls or rollers in said recesses, and inclined webs on said bar or yoke, against which said balls or rollers ride, substantially as and for the purposes set forth.

4. The herein described valve, comprising therein a valve casing a , a chambered cap b , a screw-threaded stem c , a sleeve f having a

flange *f'*, valve disks *e* and *e'* engaging with said flanged sleeve *f* and adapted to be raised thereby when said valve stem is turned, and means, connected with said valve disks for forcing said disks forward in opposite directions when the valve is nearly closed, said means consisting essentially of inclined lugs on said valve disks, having oblong recesses, balls or rollers in said recesses, and a bar or yoke *g* having inclined webs against which said balls or rollers ride, substantially as and for the purposes set forth.

5. The herein described valve, comprising therein a valve casing *a*, a chambered cap *b*, a screw-threaded stem *c*, a sleeve *f* having a flange *f'*, lugs *a³* and *a⁴* in said valve casing, valve disks *e* and *e'* engaging with said flanged sleeve *f* adapted to be raised thereby when said valve stem is turned, a yoke or bar between said valve disks adapted to be sup-

ported by said lugs *a³* and *a⁴*, when the valve is closed and said bar or yoke being adapted to be raised by said disks when the valve is being opened, and means on said bar or yoke and said valve disks for forcing said valve disks forward in opposite directions when the valve is nearly closed, said means consisting essentially of inclined lugs on said valve disks, having oblong recesses, balls or rollers in said recesses, and inclined webs on said bar or yoke, against which said balls or rollers ride, substantially as and for the purposes set forth.

In testimony that I claim the invention set forth above I have hereunto set my hand this 26th day of July, 1893.

HARVEY H. BURRITT

Witnesses:

FREDK. C. FRAENTZEL,
FRED SCHLUETER.

[Endorsed]: K. T. Co., vs. Snow et al., No. B-65-Eq. Defd. Exhibit "D." Filed May 17, 1916. Wm. M. Van Dyke, Clerk. By T. F. Green, Deputy Clerk.

Defendants' Exhibit "E"—Letters Patent Issued to
C. H. & E. H. Bentley, for Pipe Joint for
Earthenware, etc.

PATENTED JULY 31, 1906.

C. H. & E. H. BENTLEY.

PIPE JOINT FOR EARTHENWARE, &c.

APPLICATION FILED NOV. 24, 1905.

FIG. 1.

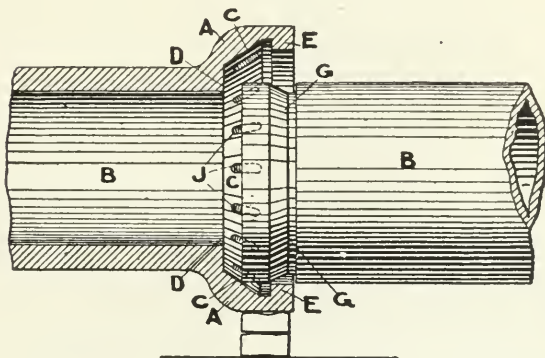
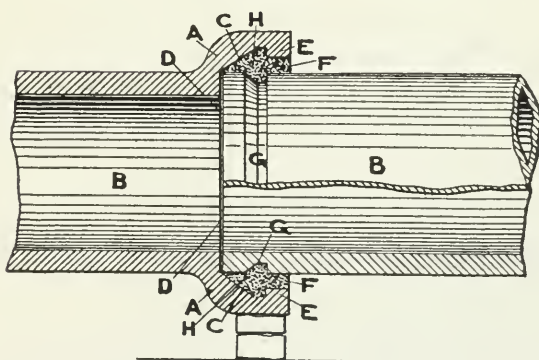


FIG. 2.



WITNESSES

Abner Reed
Wilfred Alderson

INVENTORS

Charles Henry Bentley
Ernest Haigh Bentley
per *John B. Walsh*
Attorney

UNITED STATES PATENT OFFICE.

CHARLES HENRY BENTLEY AND ERNEST HAIGH BENTLEY, OF HALIFAX,
ENGLAND.

PIPE-JOINT FOR EARTHENWARE, &c.

No. 827,409.

Specification of Letters Patent.

Patented July 31, 1906.

Application filed November 24, 1905. Serial No. 288,961.

To all whom it may concern:

Be it known that we, CHARLES HENRY BENTLEY and ERNEST HAIGH BENTLEY, subjects of the King of Great Britain, residing at Halifax, in the county of York, England, have invented new and useful Improvements in Pipe-Joints for Earthenware and other Suitable Pipes, of which the following is a specification

This invention is more particularly applicable to earthenware pipes, but is equally suitable for gas or water pipes; and our object is to construct a joint for these pipes which is self-adjusting to a correct alinement, can be more easily and quickly laid, may be laid by unskilled labor, and while rendering leakage impossible the making of said joint greatly strengthens the pipe at this part. We attain these objects in the manner illustrated in the accompanying drawings, in which—

Figure 1 is an elevation, partly in section, of our improved pipe-joint, showing the insertion of the spigot end of pipe preparatory to adjustment. Fig. 2 is a similar view to Fig. 1, but with the spigot end in position and the joint completed.

Similar letters refer to similar parts throughout both the views.

In constructing our improved joint we form the socket A of each pipe B with an inner conical or taper face C, having a straight bed or seating D at its narrowest part, so that when the next length of pipe is joined up its inner surface is flush with or in alinement with that of the pipe already laid. (See Fig. 2.) Also the socket A is further provided with an inner flange or rim E, sufficiently deep yet permit of the ready insertion of the spigot end of the next pipe and provide the required clearance or opening F for the introduction of the binding material.

At the spigot end of each pipe is a suitable annular recess or neck G of a shape or section corresponding with the taper or inner face C of socket, so that when two pipes are in position an annular chamber, miter, dovetail, or arrow-head in shape or section encircles the spigot end. This chamber is filled with cement, lead, or other binding material H. Grooves J are provided in the socket to equalize and counteract the effect of any

contraction of the binding material and prevent the same from twisting loose.

The taper or conical face C also serves to guide the spigot end onto its seat upon inserting the pipe. (See Fig. 1.) The pipe end bears against said face and slides up onto its seat D. When no further forward movement is possible, the pipe is butt up and ready for the cement or other filling.

The clearance or space F between the inner flange or rim E in the socket and the spigot end of pipe being less than the cement-chamber at its greatest diameter, the binding material when set renders any subsequent movement of the pipes in any direction an impossibility. Therefore a perfect joint of great strength and as durable as the pipes themselves is obtained. Further, there is no possibility of spigot dropping when laying or fixing the pipes, as the taper face in the socket supports the spigot end until the filling has been applied and the joint completed, and as the said spigot end also abuts against its seating D no cement or other filling can pass into the pipes.

What we claim as our invention, and desire to secure by Letters Patent, is—

The combination, with a pipe-section having a socket provided with a flat surface D at its bottom, an internally-projecting flange E at its top, and a conical surface C arranged between the said surface and flange and provided with longitudinal grooves; of a cylindrical pipe-section having no bead or projection but having a circumferential groove having a conical side and a straight side, said conical side being opposite the conical surface C and said straight side being in line with the inner edge of the flange E when the end of the pipe abuts against the flat surface D, a packing-space being formed which is narrower between the said flange and pipe than between the bases of their said conical surfaces.

In testimony whereof we have hereunto affixed our signatures in the presence of two witnesses.

CHARLES HENRY BENTLEY.
ERNEST HAIGH BENTLEY.

Witnesses:

A. REED,
WILFRED ALDERSON.

[Endorsed]: K. T. Co., vs. Snow et al., No. B-65-
Eq. Defd. Exhibit "E." Filed May 17, 1916. Wm.
M. Van Dyke, Clerk. By T. F. Green, Deputy Clerk.

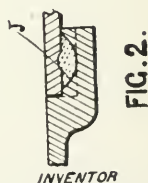
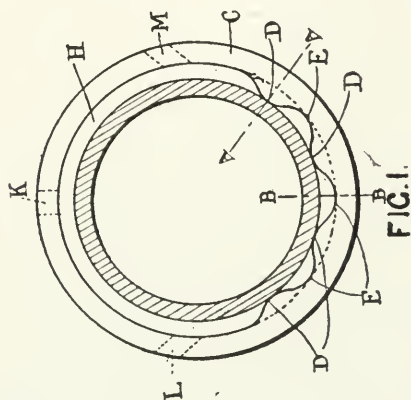
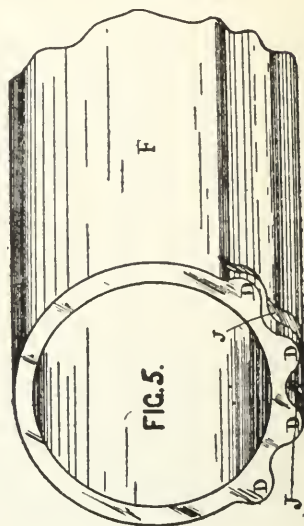
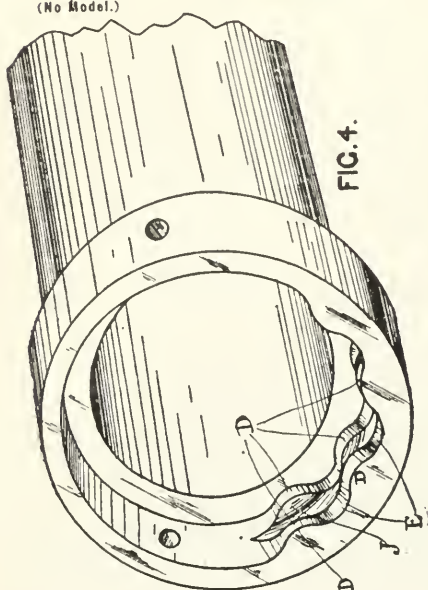
**Defendants' Exhibit "F"—Letters Patent Issued to
A. Wakefield for Sanitary or Other Pipe.**

No. 608,239.

Patented Aug. 2, 1898.

A. WAKEFIELD.
SANITARY OR OTHER PIPE.
(Application filed Oct. 18, 1897.)

(No Model.)



WITNESSES.

Harry Gee.
James Lerris

BY

Arthur Wakefield.

Scouting & Exploration

ATTORNEYS.

UNITED STATES PATENT OFFICE.

ARTHUR WAKEFIELD, OF LONDON, ENGLAND.

SANITARY OR OTHER PIPE.

SPECIFICATION forming part of Letters Patent No. 608,239, dated August 2, 1898.

Application filed October 18, 1897. Serial No. 655,591. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR WAKEFIELD, of 39 Victoria street, Westminster, London, England, have invented certain new and useful Improvements in Sanitary or other Pipes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

In laying continuous lengths of socketed earthenware sanitary pipes it is difficult to maintain a true level or gradient throughout the entire length by reason of the bedding of the spigot end of the following pipe in the socket being imperfect, there being no absolutely solid and unyielding point or points on which the said spigot end may rest, the usual bed being either cement or a strand of hemp or the like embedded in clay or otherwise or other equivalent devices.

Now the object of my invention is to so form the socket of the pipe that the spigot end of the next pipe may have certain and fixed points of support in addition to the usual cement or other bedding or filling, so that a true and effective level or grade may be secured for the invert. I attain this object by molding the pipe to a special shape (whether molded in plastic material or cast in a mold) according to either one or the other of the two forms shown upon the accompanying drawings, in which—

Figure 1 is an end view of the socket of a pipe prepared according to the form of my invention which I prefer to employ, together with a cross-section of the spigot end of the following pipe; Fig. 2, a section through line A A, and Fig. 3 a section through line B B, of Fig. 1. Fig. 4 is a perspective view of this form of pipe, showing corrugations and a transverse furrow within the socket. In Fig. 5 I have illustrated the alternative form of my invention by a perspective view of the spigot portion bearing longitudinal corrugations on its outside crossed by a transverse furrow near to the extremity.

I mold the bedding or lower portion of the socket C of the pipe into a series of short corrugations E E E, running in the direction of the length of the pipe—say to the number of three or more—the points or ridges D D D D

formed by such corrugations E E E rising to a circumferential line corresponding with the lower or outer circumference of the spigot F, thus forming points D D of certain and unyielding support for the same, the bed now presenting a ridge-and-valley formation. The operation so far may be easily accomplished in an ordinary pipe-mill by suitably shaping the die of the socket-mold to produce the required corrugations. The internal face of the corrugations at their lowest points will correspond with the usual contour of the socket, the remainder II of which, together with the valleys E E E of the corrugated portion, is filled with cement in the usual way for the purpose of making a close joint. After the pipe (assuming it to be of plastic material) has left the mold I cut or plow through the ridges formed, as before described, with a transverse or circumferential furrow J, Figs. 2 and 4, (or more than one furrow,) so leaving a number of certain points—say eight or more—on which the spigot end may rest, and is thereby prevented from sinking into the cement which forms the bedding and surrounds the spigot end.

It is obvious that if the pipe is to be made by casting the furrow J must be produced by the mold simultaneously with the pipe itself.

For the purpose of more readily pouring in the cement filling, and so making an effective joint, I form, say, three holes in the socket, one, K, at the crown and one at each side, L M, at about one-third of the depth of the pipe, or thereabout, and when several pipes are duly laid in position and clayed up I pour in the liquid cement through the two side holes, or one of them, until the space is filled up to the position of the said side holes, which are then clayed up, and when the cement is set, or nearly so, I fill up the remaining portion through the hole in the crown, thus insuring a thorough joint without the use of mastic or other linings.

According to the alternative form of my invention instead of corrugating the socket, as before described, I may leave the socket plain and corrugate the lower portion or one side of the outer surface of the pipe throughout the whole or a portion of its length (or the whole outer surface of the pipe may be corrugated, if desired) and transversely corrugate

the spigot end of these corrugations to obtain a similar result, as shown by Fig. 5.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In earthenware and like sanitary pipes a horizontally and internally corrugated (or partially-corrugated) socket having the ridges of such corrugations furrowed centrally or thereabout in the transverse or circumferential direction of the socket substantially as set forth in the foregoing specification.

2. A sanitary or other like pipe having a

horizontally-corrugated or partially-corrugated socket furrowed transversely or circumferentially and provided with three holes namely one at the crown and one at each side for pouring in cement substantially as heretofore set forth. 15

In testimony whereof I affix my signature 20 in presence of two witnesses.

ARTHUR WAKEFIELD.

Witnesses:

JAMES LEWIS,

HARRY GEE.

[Endorsed]: K. T. Co., vs. Snow et al., No. B-65-Eq. Defd. Exhibit "F." Filed May 17, 1916. Wm. M. Van Dyke, Clerk. By T. F. Green, Deputy Clerk.

Defendants' Exhibit "G"—Letters Patent Issued to
C. W. Seitz, for Irrigating Headgate.

[No. 779,973.

PATENTED JAN. 10, 1905.

C. W. SEITZ.
IRRIGATING HEAD GATE.
APPLICATION FILED AUG. 24, 1904.

28 SHEETS—SHEET 1.

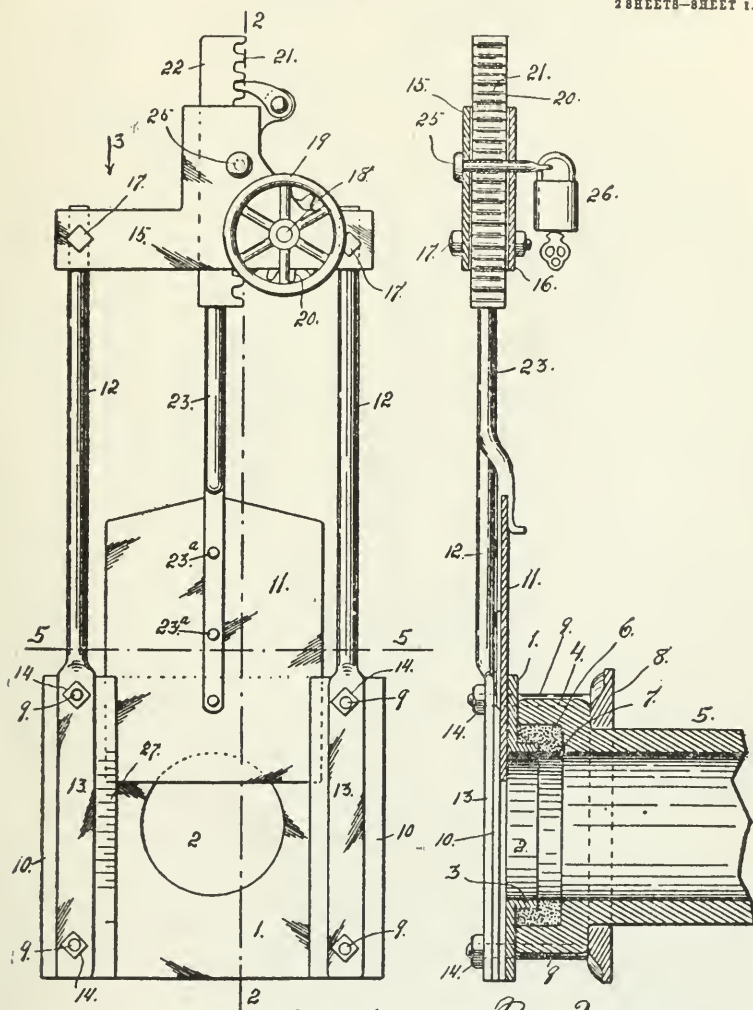


Fig 1

Fig 2

Witnesses
Otto E. Holdstock
Dana Nelson.

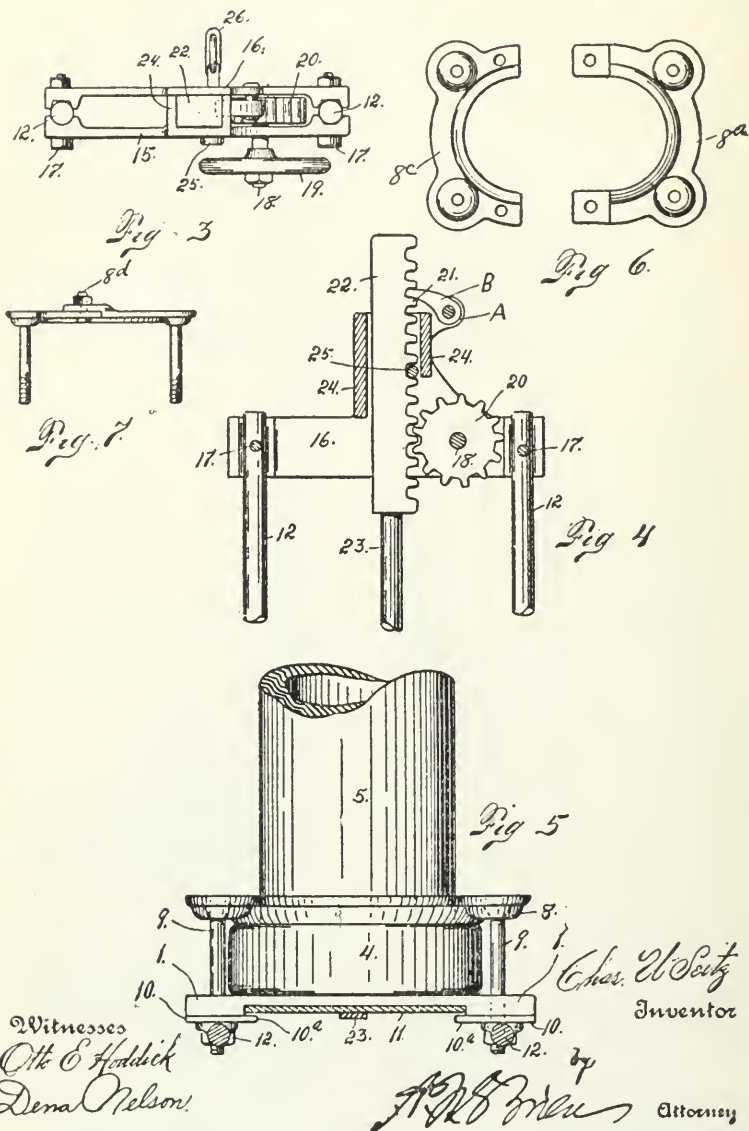
Inventor
Chas W Seitz.
by [Signature] Attorney

No. 779,973.

PATENTED JAN. 10, 1905.

G. W. SEITZ.
IRRIGATING HEAD GATE.
APPLICATION FILED AUG. 24, 1904.

16 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

CHARLES W. SEITZ, OF DENVER, COLORADO.

IRRIGATING HEAD-GATE.

SPECIFICATION forming part of Letters Patent No. 779,973, dated January 10, 1905.

Application filed August 24, 1904. Serial No. 221,946.

To all whom it may concern:

Be it known that I, CHARLES W. SEITZ, a citizen of the United States, residing in the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Irrigating Head-Gates; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in head-gates more especially intended for use in connection with irrigation where water is taken out of the main ditch into a branch ditch or lateral for use by consumers whose land is located along or adjoining the main ditch or canal.

My object is to provide a device of this class which shall be simple in construction, economical in cost, reliable, durable, and efficient in use; and to these ends the invention consists of the features, arrangements, and combinations hereinafter described and claimed, all of which will be fully understood by reference to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a front view of my improved device or a view looking toward the side which is next to the ditch or canal when the device is in use. Fig. 2 is a vertical section taken on the line 2-2, Fig. 1, showing the device attached to the conduit through which the water passes from the ditch or canal. Fig. 3 is a top view looking in the direction of the arrow 3 in Fig. 1. Fig. 4 is a view of the upper part of the device with one member of the frame removed, while the other is shown partly in section. Fig. 5 is a section taken on the line 5-5, Fig. 1, looking downwardly. Fig. 6 is a detail view illustrating a modified form of clamping-plate construction, the two members being shown separated. Fig. 7 is a top view of the same with the members connected.

The same reference characters indicate the same parts in all the views.

Let the numeral 1 designate a suitable plate provided with a centrally-located opening 2,

which is surrounded by a flange 3, which is surrounded by the bell 4 of the conduit 5 when the device is connected with the said conduit. The term "bell" as here used consists of an enlargement at one extremity of the pipe-section. Between the bell of the conduit and the flange 3 is a space filled with cement or other suitable packing material 6 for the purpose of making a water-tight joint. The bell or enlargement 4 of the conduit is considerably deeper or longer than the flange 3 of the plate, leaving a space between the free extremity of the flange 3 and the body of the conduit or the extremity where the bell or enlargement 4 begins. This space is designated 7 in Fig. 2 and is of sufficient width to allow the putting of the cement 6 or other packing material in place after the conduit has been connected with the plate 1.

A clamping-plate 8, provided with bolts 9, coöperates with the plate 1 in forming the connection between the head-gate and the conduit 5. The plate 8 engages the bell of the conduit on the outside and occupies a position opposed to the plate 1, which the free edge of the bell engages. The bolts 9, which, as shown in the drawings, are connected with the plate 8 at the time the latter is cast, pass through the outer edge of the plate 1 and through metal strips 10, which occupy positions on opposite sides of the gate proper, 11, and overlap the edges of said gate, as shown at 10^a. The outer edges of the plate 1 are reinforced, and the edges of the gate 11 occupy positions adjacent the offset formed by the reinforcement. Hence the overlapping part 10^a coöperates with the plate 1 to form ways in which the vertical edges of the gate are free to move vertically. To the strips 10 are secured vertical bars 12, whose lower extremities are flattened, as shown at 13, and connected with the strips and also with the plate 1 by means of the bolts 9 and nuts 14, which are applied to the threaded extremities. The upper extremities of the rods or bars 12 pass between the outer extremities of two plates 15 and 16, the said plates being connected with the bars by bolts 17, which pass through the plates and bars 12, the latter being provided with registering apertures for

the purpose. In the plates 15 and 16 is journaled a spindle 18, provided with a hand-wheel 19 and a pinion 20, the latter meshing with the cogs 21 of a rack-bar 22, made fast to the upper extremities of the stem 23 of the gate proper, 11. The lower extremity of this stem is secured to the gate by suitable fastening devices, as rivets 23*. The plate 15 is provided with vertical separated flanges 24, which extend to the plate 16 and form a guide-way for the rack-bar 22.

The two plates 15 and 16 are provided with registering openings in line with the cogs 21 of the bar 22, through which a locking-pin 25 may be passed. This pin when in place passes between two of the cogs of the rack-bar and locks the gate in any desired position of adjustment. One extremity of the pin is apertured to receive the hasp of a padlock 26. It is evident that when this pin is in position and the lock is applied the vertical position of the gate can only be changed by a person holding the key to the lock.

The inner edge of one of the strips 12 is graduated adjacent the gate, as shown at 27, to facilitate the adjustment of the gate. These graduations may be such as to determine the quantity of water which will pass through the opening 2 into the conduit 5 when the gate proper is in any position of vertical adjustment.

From the foregoing description the use and operation of my improved device will be readily understood. In applying the device to the conduit 5 the plate 8 is of course detached from the plate 1. The bell of the conduit 5 is placed in position against the plate 1 and surrounding the flange 3 of the said plate. The clamping-plate 8 is then slipped over the end of the section of the conduit and moved up against the exterior shoulder of the bell of the conduit. When in this position, the bolts 9 protrude through the openings in the plate 1 and the strips 10 cooperate therewith, as heretofore described. Nuts are then applied to the rods, whereby the extremity of the conduit is securely held in place, my improved device being clamped thereto. The cement or other packing 6 is then put in place and allowed to stand until it is properly set or fixed. The gate may then be raised by turning the hand-wheel 19, whereby the water is allowed to pass through the opening 2 into the conduit in any quantity desired. After the gate has been properly adjusted the pin 25 is put in position and the padlock 26 applied, when the gate will be held in the desired position until the holder of the key wishes to change it.

In the form of construction shown in Figs. 6 and 7 the clamping-plate is composed of two members 8* and 8°, which are provided with overlapping apertured parts adapted to be connected by a bolt 8^d. The advantage of

this construction is that it can be applied to a pipe-section of any length without the necessity of separating the pipe in order to pass the clamping-plate over the free end of the section directly connected with the head-gate. In other respects this form of construction operates exactly the same as the integral form of clamping-plate shown in Figs. 2 and 5.

The upper part of the frame is provided with a lug A, upon which is pivotally mounted a dog B, adapted to engage the toothed rack of the bar 22, whereby the bar will be supported in any position to which it is raised through the instrumentality of the spindle and gear. It will thus be supported in position to permit the insertion of the locking-pin 25.

Having thus described my invention, what I claim is—

1. In an irrigating head-gate, the combination with a suitable frame whose lower portion is provided with a plate having an opening, and a flange surrounding said opening, a clamping-plate opposed to the first-named plate and having an opening sufficiently large to receive the conduit with which the device is to be connected, the clamping-plate being provided with bolts which pass through suitable openings formed in the frame-plate, for fastening the device to the bell end of the conduit, a vertically-movable gate mounted in the frame and arranged to control the opening in the frame-plate, and suitable means journaled in the frame and acting on the gate for controlling the vertical position of the latter, substantially as described.

2. The combination with a conduit having a bell extremity, of a head-gate comprising a plate having an opening surrounded by a flange which the bell extremity of the conduit surrounds, a space being left between the bell extremity of the conduit and the flange of the plate, the bell extremity of the conduit being wider than the flange of the plate, leaving a filling-space within the bell extremity of the conduit and around the flange of the plate, and a vertically-movable gate suitably mounted to control the opening in the plate, substantially as described.

3. In a head-gate, the combination with a suitable frame whose lower portion consists of an apertured plate provided with ways on opposite sides of the opening therein, a gate proper engaging said ways and provided with an upwardly-projecting stem whose upper end consists of a rack-bar, the upper part of the frame being fashioned to receive the rack-bar, a spindle journaled in the upper part of the frame and provided with a gear engaging the rack-bar, the upper part of the frame being apertured on opposite sides of the teeth of the rack-bar, a pin passed through the said apertures in the frame and between the teeth of the rack-bar, the said pin having an opening

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8

at one extremity, and a lock applied to the pin, substantially as described.

4. In a head-gate, the combination of a frame provided with an apertured bottom plate having ways on opposite sides of the opening, upwardly-projecting bars connected with said plate and suitably separated, a top frame part consisting of two members secured to the upper extremities of the bars, a gate proper mounted to move vertically in the ways of the said plate, the said gate being provided with an upwardly-projecting stem whose upper extremities are provided with a rack-bar passing through the upper frame part which is provided with an opening for the purpose, a spindle journaled in the upper frame part and provided with a gear engaging the said rack-bar, the upper frame members being provided with openings on opposite sides of the teeth of the rack-bar, a pin passing through said openings and engaging the rack-bar teeth to lock the gate in the adjusted position, one extremity of the pin being provided with an opening, and a lock whose hasp is adapted to pass through the opening in the

pin whereby the latter is locked securely in place.

5. In an irrigating head-gate, the combination with a suitable frame whose lower portion is provided with a plate having an opening surrounded by a flange, of a two-part clamping-plate opposed to the first-named plate and provided with bolts which pass through openings formed in the first-named plate for the purpose set forth.

6. In an irrigating head-gate, the combination of a suitable frame whose lower portion is provided with a plate having an opening surrounded by a flange extending at right angles to the body of the plate, and a clamping-plate opposed to the first-named plate and having an opening large enough to receive a conduit whose extremities surround the flange of the first-named plate.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES W. SEITZ.

Witnesses:

DENA NELSON,

A. J. O'BRIEN.

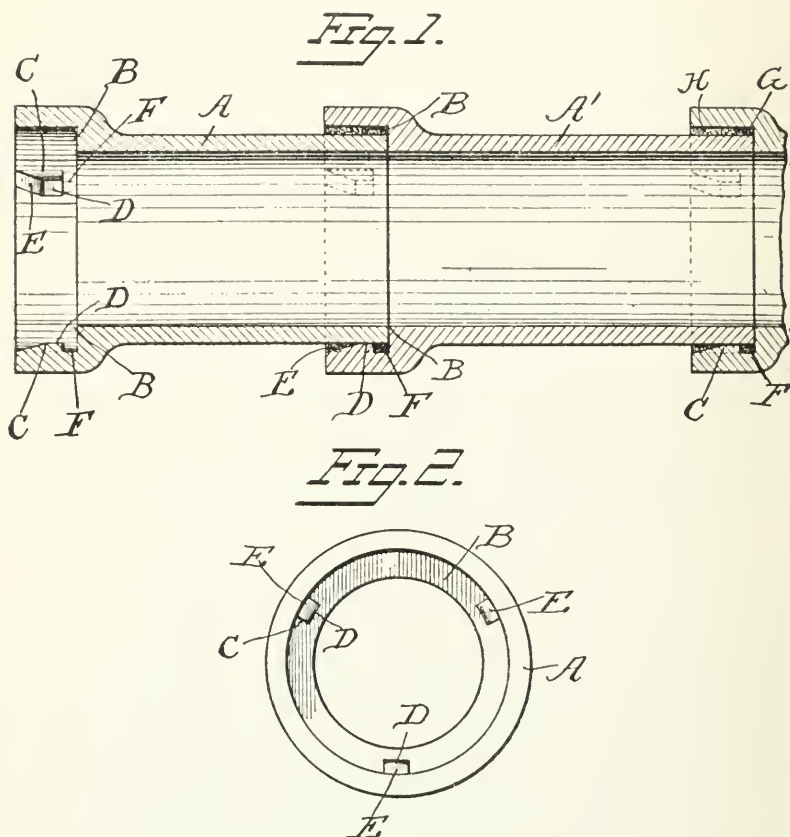
[Endorsed]: K. T. Co., vs. Snow et al., No. B-65-
Eq. Defd. Exhibit "G." Filed May 17, 1916. Wm.
M. Van Dyke, Clerk. By T. F. Green, Deputy Clerk.

**Defendants' Exhibit "H"—Letters Patent Issued to
W. L. JACKSON, for Drain or Sewer Pipe.**

W. L. JACKSON.
DRAIN OR SEWER PIPE.
APPLICATION FILED MAR. 9, 1909.

927,353.

Patented July 6, 1909.



Witnesses
R. H. Tucker
W. L. Jackson

Inventor
William Leaf Jackson
By *Albert Hopkins*
Attorney.

UNITED STATES PATENT OFFICE.

WILLIAM LEAF JACKSON, OF BROOKLAND, DISTRICT OF COLUMBIA.

DRAIN OR SEWER PIPE.

No. 927,353.

Specification of Letters Patent.

Patented July 6, 1909.

Application filed March 9, 1909. Serial No. 482,284.

To all whom it may concern:

Be it known that I, WILLIAM LEAF JACKSON, citizen of the United States, residing at Brookland, in the District of Columbia, have invented certain new and useful Improvements in Drain or Sewer Pipes, of which the following is a specification.

My invention relates to improvements in drain or sewer pipes, and particularly to an improved joint or coupling for such pipes. These pipes, which may be formed either of iron or terra-cotta, are commonly provided with a socket at one end into which the smaller end of another section is inserted when the pipe is placed in position for use. It is important that the end of one section should be so related to the end of the abutting section that no ridge or projection will be formed across the interior of the pipe to serve as an obstruction to the flow of water and to catch and retain any solid matter that may be carried by the water. Various means have been heretofore proposed for properly supporting the smaller or spigot end of such a pipe-section in position within the enlarged socket at the adjacent end of another section.

The object of my improvement is to so construct a pipe section that the spigot end of another section can be accurately and correctly placed in the socket and held in true alinement with the body of the section until the cement, lead or other fastening material has been introduced into the socket and around the spigot end of the pipe section.

Another object of my improvement is to so construct a pipe section that the bell mouthed portion will be provided with a centering lug provided with means for retaining the packing and cement around the spigot end of the pipe to firmly hold the same in the socket.

Referring to the accompanying drawings and to the letters of reference thereon, which form a part of this specification: Figure 1 is a longitudinal sectional view through a series of pipe sections constructed in a manner showing my improved centering device. Fig. 2 is an end elevation of one of the pipe sections embodying my improvements.

A represents the pipe section provided at one end with the bell mouthed socket B. Within the socket B and at the inner end thereof I arrange a series of inwardly extending lugs C. These lugs, which may be formed integral with the pipe section, are

preferably made in the form shown—that is, each lug has a surface D extending parallel to the length of the pipe section and an inclined surface E extending from the aforesaid surface D to the edge of the socket B. The lugs C also are provided with a pocket F for retaining a packing of hemp G and for allowing the cement H to flow in around the spigot end of the pipe section to firmly hold the same in the socket. In the drawings I have shown the socket B as provided with three of these inwardly extending lugs C, arranged equidistant from each other; but any suitable number may be employed.

From the above description and the drawings it will be seen that when the spigot end of section A is inserted into the socket B of the section A' the inclined surface E of the lugs C will cause its inner end to be properly guided into position of alinement with the passage in the tube section A'. It will also be seen that I so arrange the lugs C that the spigot end is held from either lateral or vertical movement, but is adapted to be revolved or turned about the longitudinal axis in order that the two ends of the sections A, A' may be arranged in the best possible relation to each other. It frequently happens that these pipes are not perfectly true circles in cross-section, and by my construction the pipe setter is enabled to rotate the spigot end until the "flow line" of the sections is properly related to each other.

One of the great advantages incident to my improved construction is that behind the lugs C is formed a pocket F for the packing to slip into behind the surface D and to allow the cement to flow in around the spigot end of the pipe sections to firmly retain the same in position and to make a very rigid joint.

What I claim as my invention and desire to secure by Letters Patent is:—

1. A pipe section having at one end a socket of greater diameter than the body part and formed with tapering lugs integral therewith provided with means to retain a packing and cement around the spigot end of a pipe section.

2. A pipe section having at one end a socket of greater diameter than the body part and formed with tapering lugs integral with the socket wall, provided with a pocket to retain a packing and cement around the spigot end of a pipe section, and having in-

2

927,353

clined surfaces extending to the edge of the
socket to enable a pipe section to be inserted
into an adjacent socket and be guided by the
inclined surfaces of the lugs into proper
6 alinement and held against either vertical or
lateral displacement, substantially as set
forth.

In testimony whereof I affix my signature, in presence of two witnesses.

WILLIAM LEAF JACKSON.

Witnesses:

ALBERT POPKINS,
M. H. YATES.

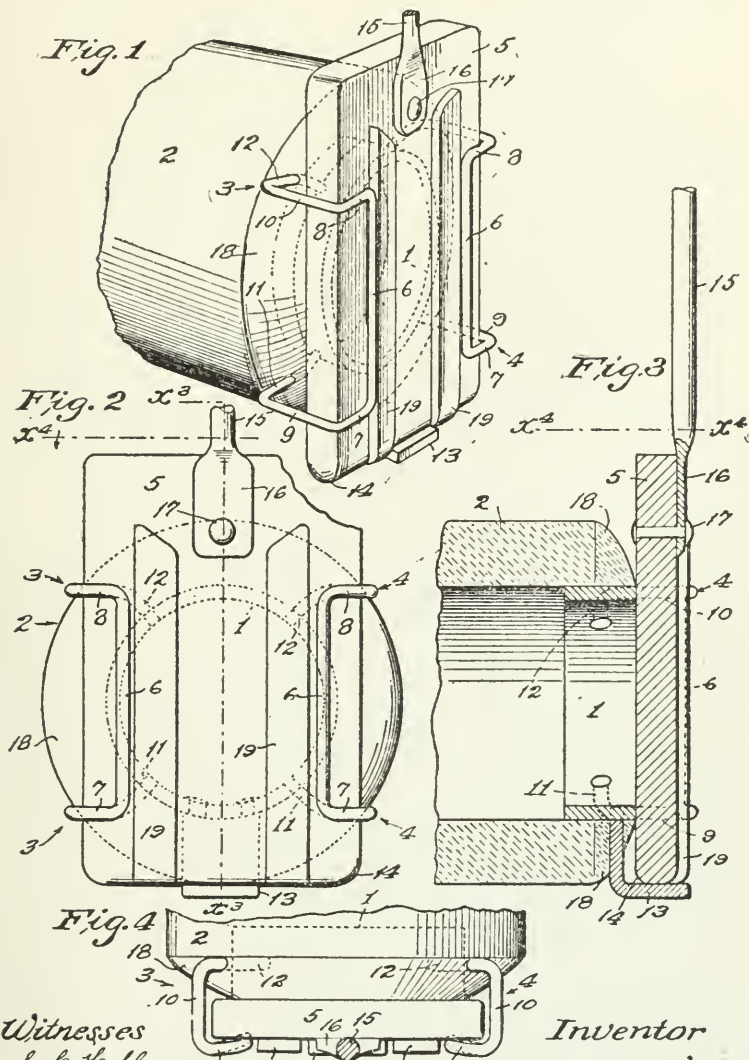
[Endorsed]: K. T. Co., vs. Snow et al., No. B-65-
Eq. Defd. Exhibit "H." Filed May 17, 1916. Wm.
M. Van Dyke, Clerk. By T. F. Green, Deputy Clerk.

Defendants' Exhibit "I"—Letters Patent Issued to
H. E. Worley, for Irrigating Pipe Gate.

H. E. WORLEY,
IRRIGATING PIPE GATE.
APPLICATION FILED APR. 21, 1909.

969,320.

Patented Sept. 6, 1910.



Witnesses

L. C. Holly

W. B. Burlak Townsend

Inventor

Henry Elmer Worley

By James H. Townsend
his atty.

UNITED STATES PATENT OFFICE.

HENRY ELMER WORLEY, OF REDLANDS, CALIFORNIA.

IRRIGATING-PIPE GATE.

969,320.

Specification of Letters Patent.

Patented Sept. 6, 1910.

Application filed April 21, 1909. Serial No. 491,377.

To all whom it may concern:

Be it known that I, HENRY ELMER WORLEY, a citizen of the United States, residing at Redlands, in the county of San Bernardino and State of California, have invented a new and useful Irrigating-Pipe Gate, of which the following is a specification.

In southern California, water for irrigation is frequently taken from ditches by means of concrete pipes that are set in the earth and extend through the wall of the ditch. Means for closing and regulating the orifice through these pipes must be provided so that the water can be shut off from flowing through the pipes when the water in the ditch is high enough to flow into the pipes.

An object of this invention is to provide convenient, cheap and satisfactory means for applying adjustable gates to the ends of such pipes.

The invention also is adapted for application in case of metal or other pipes, as will hereinafter more fully appear.

The invention may be embodied in different forms, and I do not limit the same to a specific form of construction.

The accompanying drawings illustrate the invention in the form I at present deem most desirable for concrete pipes.

Figure 1 is a perspective view of a gate as applied with a collar fitting inside a concrete pipe, the end of which is shown projecting from the inside wall of a ditch.

Fig. 2 is a front elevation of the same. Fig. 3 is a section on line x^3 , Fig. 2. Fig. 4 is a plan from line x^4 , Figs. 2 and 3.

1 is a metal collar adapted to fit inside a concrete pipe 2. Said collar is provided with two spring clamping members 3, 4, which may be of spring wire of any suitable kind as iron, steel, copper, etc., extending from the collar and bent to receive between the clamping members and the collar a gate 5.

Each of the clamping members may consist of a single piece of wire having a middle clamping limb 6, and being thence bent at right angles at both ends of said limb 6 to form lower and upper arms 7, 8, and again bent to form lower and upper extensions 9, 10 that extend at right angles to the middle limbs 6 and lower and upper arms 7 and 8, and practically parallel with the axis of the collar; and again bent to form posts 11, 12 that are riveted or other-

wise secured in the collar 1. Said collar 1 may be of cast or wrought metal, and the inner ends of the posts 11 and 12 may be secured to the collar by riveting the ends or by casting the collar on the ends of the wires which form the posts. At the bottom of the collar a stop 13 is provided formed of a wire or strip of metal bent at right angles and secured at one end to the collar, and projecting downwardly therefrom, and there bent and extending with its free end beyond a vertical line drawn from the end of the collar, so that when a gate 5 of appropriate thickness is inserted downwardly between the clamping limbs 6 and the end of the collar it will wedge tightly between said limbs 6 and the end of the collar 1, thus to be held flat against the end of the collar so as to prevent water from flowing into the collar from the ditch or other source of supply. The upper ends of the middle limbs 6 are bent slightly aslant from the plane of the free end of the collar, and the main bodies of said limbs are parallel with such plane.

The gate may be rounded at its lower end as indicated at 14, so that it will not catch on any of the parts until the lower end of the gate has passed the lower side of the collar, when it will come to rest upon the stop 13. The gate 5 may be provided with a handle 15 that may be a rod flattened at one end as shown at 16, and secured by a rivet or other fastening means 17, to the gate. Said fastening means may be in the form of a pivot for allowing the handle to be turned down out of the way when not in use. The invention is not limited by the form of handle or its fastening.

To apply the gate to the cement pipe 2 the collar will be inserted into the end of the pipe, and luting 18 of cement is then applied around the collar and against the end of the pipe 2 so as to cement the collar firmly in the pipe. This luting may also embed the posts 11 and 12, thus permanently securing the collar in the end of the concrete pipe.

In practical use the head-gate 5 may be raised and lowered as desired, by the handle 15, to allow the requisite amount of water to flow through the concrete pipe.

It is understood that the collar and its attachments are not limited to use with concrete pipes, but that the collar may be fastened inside or outside other forms of pipe,

969,320

as for instance, cast or sheet iron pipe, wooden pipe, vitrified pipe, tiling, and so on.

It is also understood that the collar may be regarded as a section of pipe, and that in case of cast iron pipe or wrought iron pipe, or the like, which is of itself strong enough to hold the clamping members, said members may be connected with the pipe directly, in the same manner as they are connected with the collar in the form shown; the principle being that the clamping members are fastened to and extend from the sides of the pipe, thence bent in lines practically parallel with the axis of the pipe, and thence bent inwardly toward the axis of the pipe, so as to receive the gate between the inwardly-bent portions and the end of the pipe, and also preferably bent as shown in the drawings, toward the plane of the end of the pipe, so that when the gate is inserted it only engages the middle clamping limbs 6. A cleat or cleats may be applied to the gate to form guides to engage the middle clamping members 6. In the drawings 19 designates such cleats.

The gate may be made of wood, iron, or any other suitable material, and the handle for the gate may be of any desired construction.

The arms 7 and 8 are preferably bent oblique to the plane of the end of the column or pipe so that when the gate is inserted between said end and the upright middle limbs 6, practically the only engagement of the clamping member with the gate is along the inside faces of such limbs, and by reason of the rounded or tapered end 14 of the gate 5 the limbs may be forced out as the gate is shoved down into place, and the arms 7 and 8 are resilient so as to constantly press the gate against the end of the collar,

thus to hold the gate in place and tightly close that portion of the orifice covered by the gate.

In Fig. 4 dotted lines indicate the free position of the arms 8, it being understood that the arms 7 are immediately thereunder, and that when the gate is withdrawn the arms 7 and 8 will spring into the dotted position.

I claim:—

1. The combination with a pipe, of a gate to close the pipe, and two continuous wire clamping members each composed of a middle limb extending parallel with the plane of the gate to form resilient arms and thence again bent to form lower and upper extensions extending lengthwise of the axis of the pipe, said limbs operating to hold the gate against the pipe.

2. In a pipe head gate, a collar, wires fastened to the sides of the collar and bent to form limbs beyond the end of the collar, a stop fastened to the collar and extending below the end thereof, and a gate to fit between the limbs and the end of the collar, said stop being adapted to stop the gate.

3. The combination with a pipe, of a collar having wire members fastened thereto and extending beyond the end of the collar and there inwardly bent to form clamping limbs, luting to cement the collar to the pipe, the same embedding a portion of said wire members to retain the collar in place.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 14th day of April, 1909.

HENRY ELMER WORLEY.

In presence of—

JAMES R. TOWNSEND,

L. BELLE RICE.

[Endorsed]: K. T. Co., vs. Snow et al., No. B-65—
Eq. Defd. Exhibit "I." Filed May 17, 1916. Wm.
M. Van Dyke, Clerk. By T. F. Green, Deputy Clerk.

Defendants' Exhibit "J"—Letters Patent Issued to
J. H. Buttorff, for Headgate.

J. H. BUTTORFF.

HEAD GATE.

APPLICATION FILED JUNE 4, 1910

976,720.

Patented Nov. 22, 1910.

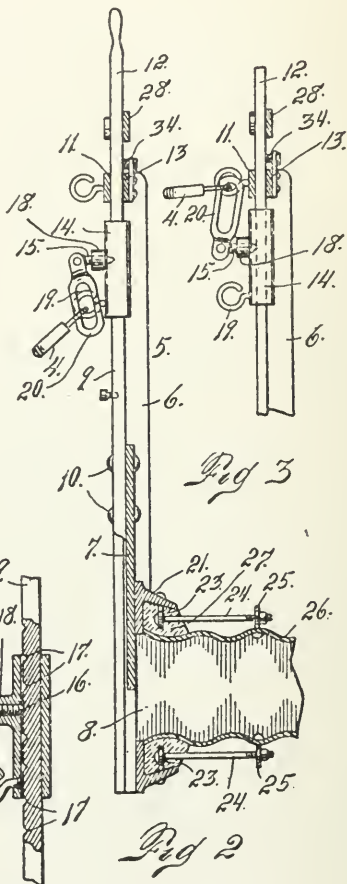
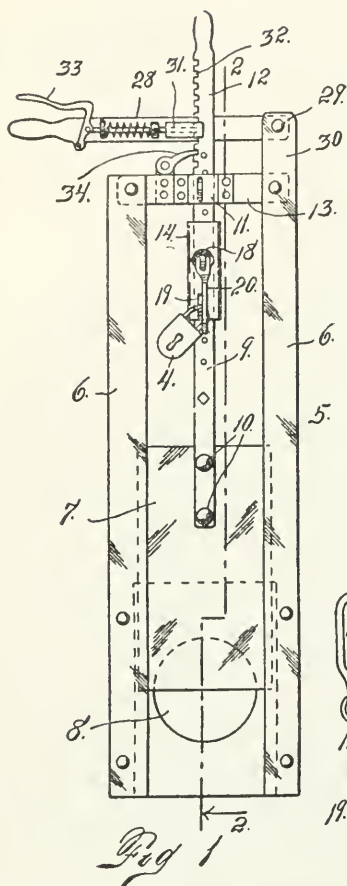


Fig 4

Witnesses

Otto E. Haddock
C. H. Rossmor.

Inventor

John H. Buttorff.
By J. O'Brien.
Attorney

UNITED STATES PATENT OFFICE.

JOHN H. BUTTORFF, OF FORT COLLINS, COLORADO.

HEAD-GATE.

976,720.

Specification of Letters Patent.

Patented Nov. 22, 1910.

Application filed June 4, 1910. Serial No. 565,005.

To all whom it may concern:

Be it known that I, JOHN H. BUTTORFF, a citizen of the United States, residing at the city of Fort Collins, county of Larimer, and State of Colorado, have invented certain new and useful Improvements in Head-Gates; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates, generally speaking, to improvements in head gates, adapted to control the flow of water from an irrigating ditch or canal to a lateral or branch ditch which supplies the consumer with a predetermined quantity of water. This gate belongs to that class of gates which are adapted to be locked in such a manner that they cannot be opened wider than a predetermined limit, whereby the consumer is prevented from using more water than he is entitled to. Where these gates are employed, there is a ditch rider or superintendent who adjusts the gate and secures it in such a manner that the consumer cannot use more water than a predetermined quantity for which he has agreed to pay.

In my improved construction the stem of the gate is equipped with a vertically adjustable block into which is threaded on one side a set bolt to the outer extremity of which is pivotally connected a slotted arm or link which after the set bolt is tightened to secure the block in place on the stem, is adjusted so that its slot shall register with the eye bolt also carried by the block. The hasp of a padlock is then passed through the opening in the link and also the eye of the bolt, after which the hasp is inserted in the lock and secured against removal except by a person holding the key to the lock. When this block is thus secured, it forms a stop to prevent the upward movement of the stem farther than the stop will allow. In other words, when the upper extremity of the stop engages a cross bar at the top of the head gate frame, the gate is open to allow the flow of the quantity of water to which the consumer is entitled, to pass through, but no more. Provision is also made whereby the link attached to the adjustable stop may be connected with the eye

of a bolt riveted to the top of the frame, the link and bolt being secured together by passing the hasp of a padlock through the opening of the link and the eye of the bolt. In this event the gate is prevented from being opened farther than the stop will allow, while at the same time, it cannot be closed except by a person holding the key to the lock.

It sometimes happens that it is important to prevent the consumer from closing the gate, since if this is done the accumulation of water in the ditch or canal may result in an overflow. Under these circumstances the gate is locked to prevent both opening and closing.

In my improved construction the stem of the head gate is toothed or notched on one side and a lever is fulcrumed on the frame and equipped with a spring-actuated dog adapted to engage the notches of the stem. By means of this lever the head gate is raised. By the employment of a lever for this purpose, the vertical manipulation of the head gate may be quickly and easily accomplished, thus giving an advantage in this respect over a nut for raising and lowering the gate.

In my improved construction I prefer to employ a corrugated iron pipe or conduit which is connected with the head gate frame by suitable means. As shown in the drawing, the head gate frame on the canal side is provided with a collar which is inclined rearwardly as it extends rearwardly, the said collar being equipped with interiorly projecting eyes or apertured lugs. The heads of the bolts are connected with these lugs, the bolts extending rearwardly and passing through eyes or apertured lugs with which the conduit is provided. The heads of the bolts in addition to being anchored by the apertured lugs, are further secured in place by a body of cement which is placed between the collar and the inner extremity of the corrugated pipe or conduit.

Having briefly outlined my improved construction, I will proceed to describe the same in detail, reference being made to the accompanying drawing, in which is illustrated an embodiment thereof.

In this drawing: Figure 1 is a front view of a head gate equipped with my improvements. Fig. 2 is a section taken through the gate on the line 2-2, Fig. 1. Fig. 3 is a side elevation of the upper part of the head

gate frame, the stem and the locking devices, illustrating the manner of locking the gate to prevent closing. Fig. 4 is a sectional detail view of the locking device mounted on the stem of the head gate, the parts being shown on a larger scale.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate the head gate frame consisting of upright bars 6 having grooved ways adapted to receive the opposite edges of a head gate 7, which is adapted to close an opening 8 either partially or wholly, through which the water flows from the canal to the lateral, first passing through the conduit or pipe section connected with the frame as hereinafter described in detail.

The stem 9 is secured to the gate in any suitable manner as by rivets or other suitable fastening devices 10. This stem passes through an opening 11 formed in the top bar 13 of the head gate frame and protrudes above the same as shown at 12.

Mounted on the stem below the cross bar 13 of the head gate frame is a block 14 which is adjustable by means of a set bolt 15, whose inner extremity is pointed as shown at 16 to enter recesses 17 with which one side of the stem is provided. The block 14 is reinforced as shown at 18 and interiorly threaded to receive the set bolt 15.

Made fast to the block or stop 18 is an eye 19, which is preferably located below the set bolt. To the outer extremity of the set bolt is pivotally connected a link 20 which when turned downwardly, may be caused to register with the eye 19. Then by locking the link to the eye 19 by means of a padlock 4, the stem cannot be moved upwardly farther than is desired in order to allow the requisite quantity of water to pass through the gate. Now if it is desired to lock the gate against closing as well as against opening, the block 14 is first properly adjusted to permit the required opening movement. The gate is then raised until this block on the stem strikes the cross bar 13, after which the link is thrown to the position shown in Fig. 3, whereby the gate is locked against closing as well as against opening.

The rear surface of the head gate frame is provided with a collar 21 forming an inwardly flared rearwardly extending member. The inner surface of this collar is equipped with apertured lugs 23, which form an anchorage for the heads of the bolts 24, the threaded extremities of the bolts passing through apertured lugs or eyes 25, secured to a corrugated conduit member 26. The space between the collar 21 and the conduit 26, is filled with cement or concrete 27, whereby the heads of the bolts are completely buried.

The lifting movement of the gate is accomplished through the instrumentality of a lever 28 fulcrumed as shown at 29 on an

extension 30, with which one of the side members 5 of the head gate frame is provided. Between the fulcrum and the extremity of the lever, the latter crosses the portion 12 of the head gate stem above the cross bar 13 and a spring-actuated dog 31 with which the lever is provided, is adapted to enter notches 32 formed in one edge of the stem. This dog is controlled by a hand piece 33 connected with the lever in the usual way. When the dog of the lever is interlocked with the toothed edge of the stem, as shown in Fig. 1, in order to raise the gate it is only necessary to lift on the free extremity of the lever, and a gravity pawl 34 will engage a notch 32 and support the gate to the height raised, by this movement of the lever. If a further opening movement of the gate is required, the dog 31 is withdrawn from its notch, and the handle extremity of the lever lowered and the dog 31 allowed to engage a lower notch, after which the lifting operation is repeated. This may be done as often as necessary in order to give the gate the required opening movement. This movement, however, is limited by the stop block 14, which it is assumed is properly adjusted and locked as heretofore explained.

Having thus described my invention, what I claim is:

1. The combination with a head gate having a stem, of a stop block slidably mounted on the stem, a set bolt threaded in the block for securing the block in place on the stem, and means for locking the set bolt against movement, substantially as described.

2. The combination with a head gate having a stem, a frame in which the head gate is movable, the frame having a cross bar provided with an opening through which the stem of the gate passes, a stop block mounted on the stem below the cross bar of the frame, a set bolt threaded in the block, and means for locking the set bolt against turning, substantially as described.

3. The combination with a frame, a head gate movable in the frame, and having a stem passing through an opening formed in a cross bar with which the frame is provided, a stop block slidably mounted on the stem below the cross bar, a set bolt threaded in the stop block and having its inner extremity pointed to enter recesses with which the stem is provided, a link pivotally connected with the set bolt, and means coöperating with the link for locking the set bolt against turning movement, substantially as described.

4. The combination with a head gate having a stem, of a stop block slidably mounted on the stem, a set bolt threaded in the stop block, a link connected with the set bolt, and means coöperating with the link for locking the set bolt against turning and for

simultaneously locking the gate against downward movement.

5 5. The combination with a head gate frame, and a head gate having a stem, of a
stop block adjustably mounted on the stem,
a set bolt carried by the stop block, a slotted
link connected with the outer extremity of
the set bolt, an eye mounted on a top cross
bar with which the head gate frame is
10 equipped, and arranged to register with the
slot of the link, and a padlock for securing
the link to said eye, substantially as de-
scribed.

13 6. The combination with a head gate
frame, of a gate slidably mounted in the
frame and provided with a toothed stem,
and a lever fulcrumed on the frame at one
side thereof and crossing the stem, the said
lever having a spring-actuated dog adapted
20 to engage the toothed edge of the stem for
manipulating the gate, substantially as de-
scribed.

25 7. The combination with a head gate
frame, of a gate slidable in the frame and
having a stem toothed on one edge, a lever
fulcrumed on the frame at one side thereof

and crossing the stem, the said lever carry-
ing a spring actuated dog adapted to enter
the notches of the stem, and a gravity pawl
mounted on the frame and also adapted to
engage the notches of the stem, substantially
as described.

8. The combination with a head gate
frame having an opening and a gate for
controlling the said opening, of a corru- 36
gated pipe section extending rearwardly
from the head gate frame and registering
with the opening therein, a collar secured to
the head gate frame and having inwardly
projecting apertured lugs, the pipe section 40
also being equipped with apertured lugs,
bolts connecting the two sets of apertured
lugs, and means for anchoring the bolts in
the space between the collar and the forward
extremity of the corrugated pipe section, 45
substantially as described.

In testimony whereof I affix my signature
in presence of two witnesses.

JOHN H. BUTTORFF.

Witnesses:

A. J. O'BRIEN,
HORTENSE UHLRICH.

[Endorsed]: K. T. Co. vs. Snow et al., No. B-65-
Eq. Defd. Exhibit "J." Filed May 17, 1916. Wm.
M. Van Dyke, Clerk. By T. F. Green, Deputy Clerk.
Cassell Severance, Patent Attorney, Suite 908 Secur-
ity Building, Los Angeles, Cal.

**Defendant's Exhibit "K"—British Letters Patent
No. 7442 Issued to Ovid Topham, for Sluice
Cocks for Waterworks.**



A. D. 1837 No. 7442.

**Sluice Cocks for Waterworks, applicable to Steam,
Gas, and other Pipes.**

TOPHAM'S SPECIFICATION.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, **OVID TOPHAM**, of Whitecross Street, in the Parish of St. Luke's, in the County of Middlesex, Engineer and Millwright, send greeting.

WHEREAS Her present most Excellent Majesty Queen Victoria, by Her
5 Royal Letters Patent under the Great Seal of Great Britain, bearing date at
Westminster, the Fifth day of October, in the first year of Her reign, and
in the year of our Lord One thousand eight hundred and thirty-seven, did, for
Herself, Her heirs and successors, give and grant unto me, the said Ovid
Topham, Her especial license, full power, sole privilege and authority, that I,
10 the said Ovid Topham, My executors, administrators, and assigns, or such
others as I, the said Ovid Topham, my executors, admors, or assigns, should
at any time agree with, and no others, from time to time and at all times during
the term of years therein mentioned, should and lawfully might make, use,
exereise, and vend, within that part of the United Kingdom of Great Britain
15 called England, the Dominion of Wales, and Town of Berwick-upon-
Tweed, and also in all Her Majesty's Colonies and Plantations abroad, my
Invention of "CERTAIN IMPROVEMENTS IN THE CONSTRUCTION OF SLUICE COCKS FOR
WATERWORKS, AND WHICH IMPROVED CONSTRUCTION OF COCKS IS ALSO APPLICABLE TO
STEAM, GAS, AND OTHER PURPOSES;" in which said Letters Patent is contained a
20 proviso obliging me, the said Ovid Topham, by an instrument in writing under
my hand and seal, particularly to describe and ascertain the nature of my said

Topham's Improvements in Sluice Cocks for Waterworks, &c.

Invention, and in what manner the same is to be performed, and to cause the same to be enrolled in Her Majesty's High Court of Chancery within six calendar months next and immediately after the date of the said in part recited Letters Patent, as in and by the same, reference being thereunto had, will more fully and at large appear.

5

NOW KNOW YE, that in compliance with the said proviso, I, the said Ovid Topham, do hereby declare, that the nature of my said Invention, and the manner in which the same is to be performed, are particularly described and ascertained in and by the following description thereof, reference being had to the Drawings hereunto annexed, and to the letters and figures marked thereon (that is to say):—

My invention of certain improvements in the Construction of Sluice Cocks for Waterworks, and which Improved Construction of Cocks is also applicable to Steam, Gas, and other Purposes, applies more particularly to that description of sluice cocks or valves which are usually placed under ground in the street mains or service pipes of water and gas works, in which situation the metal composing the same is liable to injury by corrosion or the chemical action of different earthy matters in contact therewith, but which effect is more particularly injurious as regards the wrought-iron screw bolts and nuts, and the metallic packing used in securing the various junctions of the parts composing the casing or body of the said sluice cocks or valves, in consequence of which frequent leakage takes place. The object of my Invention is to obviate such evil by making or manufacturing such sluice cocks and valves without the usual side or vertical joints or junctions, by which means their necessary screw bolts, nuts, and metallic packing are dispensed with, and consists in forming or casting the main body or casing of such sluice cocks or valves in one continuous piece of metal, having only one opening or aperture at the upper part for the convenience of fitting up and applying the slide of the valve, which aperture is afterwards closed with the necessary cap-piece or cover fitted in the usual manner, through which the shaft or spindle connected with the screw rack and pinion, or other mechanical contrivance used for raising or lowering the slide of the cock or valve, is passed; and as such cap-piece is not usually covered with earth, its joints or junctions and packings are not so liable to injury as those at the side of the ordinary sluice cocks. And in order further to illustrate my improvements, and the manner of carrying the same into effect, I will now refer to the accompanying Drawings, which are several representations of my improved construction of sluice cocks or valves, shewing several modifications or arrangements of the same, which different modes or contrivances for raising and lowering the slide or stop piece, but

Topham's Improvements in Sluice Cocks for Waterworks, &c.

which contrivances I do not consider as part of my Invention, they being in common use, and I have only shewn them in order that the mode of applying and using the same with my improved sluice cocks or valves may be readily understood.

5 Fig. 1 is a side elevation of one of my improved sluice cocks or valves detached from the street main or service pipe. Fig. 2 is a vertical section of the same. Fig. 3 is a plan or horizontal view, the cap-piece or cover being removed to expose the interior; and Figures 4 and 5 are back and face representations of the slide or stop piece removed from out of the valve to shew
10 its construction, the same letters of reference being marked upon these and all the following Figures. *a, a*, is the main body or casing of the valve cast in one piece, with the two ends or sockets *b, c*, for receiving the ends of the street pipes or mains, together with the upper part or chamber *d*, in which the mechanical contrivance for raising and lowering the slide is placed, which in
15 this instance is a toothed rack and endless screw. *e* is the cap-piece or cover of the chamber *d*, fitted in the usual way with screw bolts and nuts and metallic packing and the stuffing box *f*, through which the spindle or shaft *g* is passed, its lower end turning in a proper bearing, and having the endless worm or screw *h* formed upon it, which takes into the toothed rack *k* formed upon the
20 back of the slide *i*, which is accurately fitted at the parts *m, m* to the face of the aperture *n* of the valve or cock; the slide is kept tight against the face of the aperture when closed by means of inclined planes or wedge pieces at *o, o*, formed on the casing coming in contact with other parts *p, p*, of the slide. This action of this valve will be readily understood by inspecting the Drawings,
25 therefore no further description will be necessary.

Fig. 6 is a longitudinal vertical section of another sluice cock or valve of my improved construction, shewing a slight variation in the mode of applying and fitting the slide thereto, and in the manner of making the same, which in this instance has double faces fitted against the mouths of the apertures, and
30 is worked by means of a male screw formed upon the shaft taking into a female screw upon the slide; and Fig. 7 is a plan view of the same; similar letters of reference being marked upon corresponding parts, as in the former Figures, and the construction of this valve being so simple, it will not be necessary for me further to describe it, the slide being in this instance fitted
35 between two surfaces or faces formed on the mouths of the apertures *n, n*, of the valve or cock. Figures 8 and 9 are front and back views of the slide and screw. Fig. 10 is a side elevation, Fig. 11 is a longitudinal vertical section, and Fig. 12 is a plan view of another of my improved valves or cocks, in which another slight variation in the fitting up and applying the slide is shewn,
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the face of which in this instance is fitted against the face of the aperture *n* of the end piece or socket *c*, which in this modification is cast separate from the valve case or box, and secured by a screw joint and packing or other fastening to the valve case. This mode may be preferred by some persons for the convenience of accurately forming the face of the aperture, or the convenience of 5 putting brass faces thereon, which can easily be done when it is detached from the valve; whereas, in the former instances, the faces of the apertures have to be accurately formed by means of tools introduced into the valve case through the chamber *d*. Figures 13 are various detached representations of the slide, the better to shew its construction. 10

Fig. 14 is a side elevation, Fig. 15 is a vertical section, and Fig. 16 is a plan view of another modification of my improved construction of slide valve or cock, shewing the slide fitted with double facings in contact with the mouths of the two ends or sockets *b* and *c*, which in this instance are both moveable for the purpose, as above stated; in other respects the construction is the 15 same as that last described. Figs. 17 are side and face representations of the slide and its shaft or spindle detached from the valve to shew the manner of fitting up the same.

Having now described my improvements in the construction of sluice cocks or valves, and the manner of carrying the same into effect, I would remark 20 that it will be evident that the same is applicable to steam pipes, brewers and distillers liquor pipes, and various other situations where it is desirable to obviate the evil arising from leakage of the side joints of sluice cocks or valves of the ordinary construction; and in construction to state, that I do not claim any of the mechanical contrivances herein described and shewn for raising and 25 lowering the slides of the said cocks or valves, or the mode of fitting or applying the same with the necessary shafts or spindles and stuffing boxes, as they are not new, and form no part of my invention, my improvements consisting in, and what I claim as my improvements being, the making, forming, or casting the main body, box, or casing of the slide valve or cock in one and the same piece 30 of metal, and the modes of fitting and applying the slide or stop piece thereto, and the manner of forming the facings of the cocks or valves, as herein set forth and described.

In witness whereof, I, the said Ovid Topham, have hereunto set my hand and seal, this Fifth day of April, One thousand eight hundred 35 and thirty-eight.

OID (L.S.) TOPHAM. [141a]

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AND BE IT REMEMBERED, that on the Fifth day of April, in the first year of the reign of Her Majesty Queen Victoria, the said Ovid Topham came before our said Lady the Queen in Her Chancery, and acknowledged the Instrument aforesaid, and all and every thing therein contained and 5 specified, in form above written. And also the Instrument aforesaid was stamped according to the tenor of the Statute made in the fifty-fifth year of the reign of His late Majesty King George the Third.

Inrolled the Fifth day of April, One thousand eight hundred and thirty-eight.

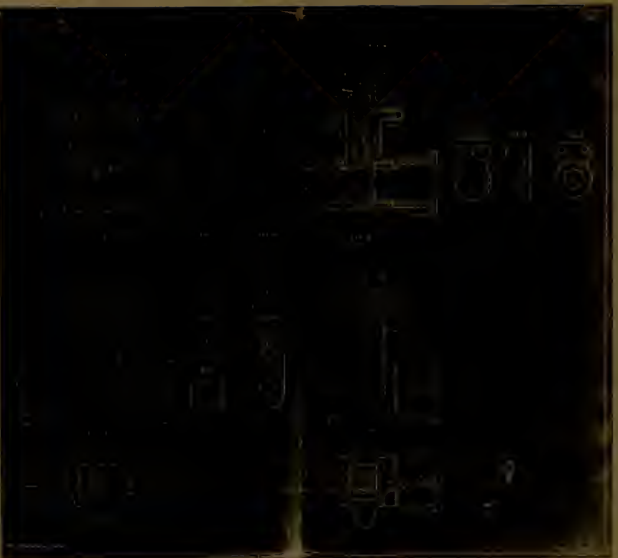
LONDON:

Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,

Printers to the Queen's most Excellent Majesty. 1856.

[In right-hand margin:] FARRER.





[Endorsed]: K. T. Co. vs. Snow et al. No. B-65—Eq. Defd. Exhibit “K.” Filed May 17, 1916. Wm. M. Van Dyke, Clerk. By T. F. Green, Deputy Clerk.

Defendants' Exhibit "M"—Photograph.



[Endorsed]: K. T. Co. vs. Snow et al., No. B-65-
Eq. Defd. Exhibit "M." Filed May 17, 1916. Wm.
M. Van Dyke, Clerk. By T. F. Green, Deputy Clerk.

*United States District Court, Southern District of
California, Southern Division.*

IN EQUITY—No. B-65.

KELLAR-THOMASON COMPANY,
Plaintiff,

vs.

FRANK P. SNOW and FRANK S. LIVINGSTON,
Doing Business as Partners Under the Name
of SNOW MANUFACTURING COMPANY,
Defendants.

Petition for Appeal.

The defendants in the above-entitled suit conceiving themselves aggrieved by the Interlocutory Decree made and entered in the above-entitled suit on May 25, 1916, granting an injunction as in said Decree set forth against defendants, and each of them, come now by Frederick S. Lyon, Esq., their solicitor and counsel, and petition said court for an order allowing defendants to prosecute an appeal from said Decree to the Honorable, The United States Circuit Court of Appeals for the Ninth Circuit under and according to the laws of the United States in that behalf made and provided, and also for an order fixing the sum of security which defendants shall give and furnish upon said appeal.

FREDERICK S. LYON,
Solicitor for Defendants. [147]

[Endorsed]: No. B-65—Eq. United States District Court, Southern District of California, Southern Division. Kellar-Thomason Company, Plaintiff, vs.

Frank P. Snow and Frank S. Livingston, Doing Business as Partners Under the Name of Snow Manufacturing Company, Defendants. In Equity. Petition for Appeal. Filed June 22, 1916. Wm. M. Van Dyke, Clerk. By Leslie S. Colyer, Deputy Clerk. Frederick S. Lyon, 504-7 Merchants' Trust Building, Los Angeles, Cal., Solicitor for Defendants. [148]

United States District Court, Southern District of California, Southern Division.

IN EQUITY—No. B-65.

KELLAR-THOMASON COMPANY,

Plaintiff,

vs.

FRANK P. SNOW, and FRANK S. LIVINGSTON,
Doing Business as Partners Under the Name
of SNOW MANUFACTURING COMPANY,
Defendants.

Order Allowing Appeal and Fixing Amount of Bond.

In the above-entitled suit, the defendants having filed their petition for an order allowing an appeal from the Decree of this court made and entered in this suit on May 25th, 1916, granting an injunction against defendants, together with Assignments of Error;

Now, on motion of Frederick S. Lyon, Esq., solicitor for defendants, it is ordered that said appeal be and hereby is allowed to defendants to the United States Circuit Court of Appeals for the Ninth Circuit from said decree granting and allowing an injunction

against defendants, and that the amount of defendants' bond on said appeal be and the same is hereby fixed in the sum of two hundred fifty dollars, the same to act as a supersedeas of the judgment for costs and disbursements heretofore entered against defendants.

It is further ordered that upon the filing of such security a certified transcript of the records and proceedings herein, in accordance with the statutes and the Equity Rules, [149] be forthwith transmitted to said United States Circuit Court of Appeals for the Ninth Circuit.

Dated June 22d, 1916.

OSCAR A. TRIPPET,

District Judge.

[Endorsed]: No. B-65—Eq. United States District Court, Southern District of California, Southern Division. Kellar-Thomason Company, Plaintiff, vs. Frank P. Snow and Frank S. Livingston, Doing Business as Partners Under the Name of Snow Manufacturing Company, Defendants. In Equity. Order Allowing Appeal and Fixing Amount of Bond. Filed June 22, 1916. Wm. M. Van Dyke, Clerk. By Leslie S. Colyer, Deputy Clerk. Frederick S. Lyon, 504-7 Merchants' Trust Building, Los Angeles, Cal., Solicitor for Defendants. 3 Eq., Jl., 385. [150]

*United States District Court, Southern District of
California, Southern Division.*

IN EQUITY—No. B-65.

KELLAR-THOMASON COMPANY,

Plaintiff,

vs.

FRANK P. SNOW, and FRANK S. LIVINGSTON,
Doing Business as Partners Under the Name
of SNOW MANUFACTURING COMPANY,
Defendants.

Assignments of Error.

Come now defendants above named and specify and assign the following as errors upon which they will rely upon their appeal to the United States Circuit Court of Appeals for the Ninth Circuit from the Decree of May 25th, 1916, granting an injunction against defendants and each of them as in said decree set forth:

1. Error in adjudging and decreeing that George E. Kellar was the original, first or sole inventor of the new or useful, or any new or useful, improvement in irrigating connections, either as described or as claimed in letters patent No. 1,016,159, granted January 30th, 1912.

2. Error in adjudging and decreeing that said letters patent No 1,016,159, dated January 30th, 1912, is good or valid in law, or that the claim thereof is good or valid in law. [151]

3. Error in adjudging and decreeing that defendants, or either of them, have infringed upon said let-

ters patent or upon the claim thereof in any manner whatsoever.

4. Error in ordering, adjudging and decreeing that a perpetual injunction, or any injunction whatever, issue against defendants or either of them as in said decree set forth, or otherwise at all.

5. Error in not adjudging and decreeing that said alleged letters patent No. 1,016,159 are null and void and of no effect whatsoever.

6. Error in not adjudging that the said alleged invention alleged to be set forth or claimed in and by said alleged letters patent No. 1,016,159 was old and well known prior to the alleged invention thereof by said Kellar.

7. Error in not adjudging and decreeing that the alleged invention to be described or claimed in said alleged letters patent was anticipated and that said Kellar was not the original, first or sole inventor thereof.

8. Error in not adjudging that the said pretended invention alleged to be set forth, described or claimed in or by said pretended letters patent was well known and in common use prior to the alleged invention thereof by said Kellar.

9. Error in not adjudging that said pretended letters patent are void on their face for insufficient description of the pretended invention.

10. Error in not adjudging that the said pretended letters patent are void for insufficiency and indefiniteness in description and showing thereof, and do not contain description in such full, clear and exact terms as to enable one skilled in the art to make

and use the same as required by statute. [152]

11. Error in not adjudging and decreeing that said defendants and each of them have not in any manner infringed said letters patent.

In order that the foregoing Assignments of Error may be and appear of record, defendants present the same to the Court and pray that such disposition may be made thereof as is in accordance with the laws of the United States.

WHEREFORE, the said defendants pray that the said decree of this court made and entered on May 25th, 1916, and the injunction thereby granted and ordered, be reversed and the said injunction set aside, and the said Court be directed to enter a decree ordering and adjudging the said letters patent to be void and not to have been infringed by these defendants, and denying the relief asked by plaintiff against these defendants.

All of which is respectfully submitted.

FREDERICK S. LYON,
Solicitor for Defendants.

[Endorsement]: No. B-65. United States District Court, Southern District of California, Southern Division. Kellar-Thomason Company, Plaintiff, vs. Frank P. Snow and Frank S. Livingston, Doing Business as Partners Under the Name of Snow Manufacturing Company, Defendants. In Equity. Assignments of Error. Frederick S. Lyon, 504-7 Merchants' Trust Building, Los Angeles, Cal., Solicitor for Defendants. [153]

*United States District Court, Southern District of
California, Southern Division.*

IN EQUITY—No. B-65.

KELLAR-THOMASON COMPANY,

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vs.

FRANK P. SNOW, and FRANK S. LIVINGSTON,
Doing Business as Partners Under the Name
of SNOW MANUFACTURING COMPANY,
Defendants.

Bond on Appeal.

KNOW ALL MEN BY THESE PRESENTS:
That the NATIONAL SURETY COMPANY, a corporation of New York, N. Y., is held and firmly bound unto Kellar-Thomason Company, plaintiff in the above-entitled suit in the penal sum of two hundred fifty dollars (\$250), to be paid unto the said Kellar-Thomason Company, its successors and assigns for which payment well and truly to be made NATIONAL SURETY COMPANY, a corporation of New York, N. Y., binds itself, its successors and assigns firmly by these presents.

Sealed with the corporate seal and dated this 22d day of June, 1916.

The condition of the above obligation is such that whereas the said Frank P. Snow and Frank S. Livingston, doing business as partners under the name of Snow Manufacturing Company, defendants in the above-entitled suit, are about to take an appeal to the United States Circuit Court of Appeals for the

Ninth Circuit to reverse a decree made, rendered and [154] entered May 25th, 1916, by the District Court of the United States for the Southern District of California, Southern Division, in the above-entitled cause granting an injunction against the said defendants.

NOW, THEREFORE, the condition of the above obligation is such that if said Frank P. Snow and Frank S. Livingston, doing business as partners under the name of Snow Manufacturing Company shall prosecute their appeal to effect and answer all costs which have been or may be adjudged against them if they fail to make good their appeal, then this obligation shall be void; otherwise to remain in full force and effect.

NATIONAL SURETY COMPANY. (Seal.)

By WILLIAM M. CURRAN,

Its Attorney in Fact.

State of California,

County of Los Angeles,—ss.

On this 22d day of June, in the year, one thousand nine hundred and sixteen, before me Catesby C. Thom, a notary public in and for said county and State, residing therein, duly commissioned and sworn, personally appeared William M. Curran, known to me to be the duly authorized attorney in fact of National Surety Company, and the same person whose name is subscribed to the within instrument as the attorney in fact of said company, and the said William M. Curran acknowledged to me that he subscribed the name of National Surety Company

thereto as principal, and his own name as attorney in fact.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal [155] the day and year in this Certificate first above written.

[Seal] CATESBY C. THOM,
Notary Public in and for Los Angeles County, State of California.

No. B-65. United States District Court, Southern District of California, Southern Division. Kellar-Thomason Company, Plaintiff, vs. Frank P. Snow and Frank S. Livingston, Doing Business as Partners Under the Name of Snow Manufacturing Company, Defendants. In Equity. Bond on Appeal. Approved June 22, 1916. Trippet, Judge. Filed June 22, 1916. Wm. M. Van Dyke, Clerk. By Leslie S. Colyer, Deputy Clerk. Frederick S. Lyon, 504-7 Merchants' Trust Building, Los Angeles, Cal., Solicitor for Defendants. [156]

UNITED STATES OF AMERICA.

District Court of the United States, Southern District of California, Southern Division.

CLERK'S OFFICE.

IN EQUITY—No. B-65.

KELLAR-THOMASON COMPANY,
Plaintiff,

vs.

FRANK P. SNOW et al.,
Defendants.

Praecept Under Equity Rule 75.

To the Clerk of said Court:

Sir: Please prepare as a transcript of record on appeal by defendants, a copy of each of the following, and duly certify the same as transcript of record on appeal, in accordance with the Equity Rules and statutes in such case made and provided:

Bill of Complaint.

Answer.

Stipulation filed May 17, 1916, and Exhibits Thereto.
Interlocutory Decree.

Petition for Order Allowing Appeal.

Assignment of Error.

Order Allowing Appeal.

Bond on Appeal.

Condensed Statement of Evidence Under Rule 75 as
Approved by the Court.

Copies of All Paper Exhibits.

FREDERICK S. LYON,
Solicitor for Defendants.

[Endorsed]: In Equity—No. B-65. U. S. District Court, Southern District of California, Southern Division. Kellar-Thomason Company, Plaintiff, vs. Frank P. Snow et al., Defendants. Praecept. [157] for ———. Due service and receipt of a copy of the within praecipe is hereby admitted this 13th day of Sept., 1916. Charles C. Montgomery, Solicitor for Plaintiff. Filed Sep. 14, 1916. Wm. M. Van Dyke, Clerk. By T. F. Green, Deputy Clerk. [158]

In the District Court of the United States of America, in and for the Southern District of California, Southern Division.

No. B-65—IN EQUITY.

KELLAR-THOMASON COMPANY, a Corporation,

Complainant,

vs.

FRANK P. SNOW and FRANK S. LIVINGSTON, Doing Business as Partners Under the Name of SNOW MANUFACTURING COMPANY,

Defendants.

Certificate of Clerk U. S. District Court to Transcript of Record.

I, Wm. M. Van Dyke, Clerk of the District Court of the United States of America, in and for the Southern District of California, do hereby certify the foregoing one hundred fifty-eight typewritten pages, numbered from 1 to 158, inclusive, and comprised in one volume, to be a full, true and correct copy of the Bill of Complaint, the Answer, the Stipulation filed May 17, 1916, the Interlocutory Decree, the Condensed Statement of Evidence under Equity Rule 75, all paper exhibits, the Petition for Appeal, the Order Allowing Appeal and Fixing Amount of Bond, the Assignments of Error, the Bond on Appeal, and the Praecipe under Equity Rule 75, in the above the therein entitled cause, and that the same together constitute the record in said cause as specified in the said Praecipe filed in my office on behalf

[159] of the appellants by his solicitor of record.

I further certify that the cost of the foregoing record is \$79.50, the amount whereof has been paid me by Frank P. Snow and Frank S. Livingston, doing business as partners under the name of Snow Manufacturing Company, the appellants herein.

IN TESTIMONY WHEREOF I have hereunto set my hand and affixed the seal of the District Court of the United States of America, in and for the Southern District of California, Southern Division, this 12th day of December, in the year of our Lord, one thousand nine hundred and sixteen and of our Independence the One Hundred and Forty-first.

[Seal] WM. M. VAN DYKE,
Clerk of the District Court of the United States of
America, in and for the Southern District of
California. [160]

[Endorsed]: No. 2892. United States Circuit Court of Appeals, for the Ninth Circuit. Frank P. Snow and Frank S. Livingston, Doing Business as Partners Under the Name of Snow Manufacturing Company, Appellants, vs. Kellar-Thomason Company, a Corporation, Appellee. Transcript of the Record. Upon Appeal from the United States District Court for the Southern District of California, Southern Division.

Filed December 14, 1916.

F. D. MONCKTON,
Clerk of the United States Circuit Court of Appeals,
for the Ninth Circuit.

By Paul P. O'Brien,
Deputy Clerk.

*In the United States Circuit Court of Appeals, Ninth
Judicial Circuit.*

IN EQUITY—No. B-65.

KELLAR-THOMASON COMPANY,

Plaintiff-Appellees,

vs.

FRANK P. SNOW and FRANK S. LIVING-
STON, Doing Business as Partners Under
Name of SNOW MANUFACTURING
COMPANY,

Defendants-Appellants.

**Order Extending Time to October 22, 1916, to File
Record and Docket Cause.**

Good cause appearing therefor, it is hereby ordered, that the time heretofore allowed said appellants to docket said cause and file the record thereof, with the clerk of the United States Circuit Court of Appeals for the Ninth Circuit, be and the same is hereby enlarged and extended to and including the 22d day of October, 1916.

Dated at Los Angeles, California, July 18, 1916.

TRIPPET,

U. S. District Judge.

[Endorsed]: No. B-65. United States District Court, Southern District of California, Southern Division. Kellar-Thomason Company, Plaintiff, Appellee, vs. Snow Manufacturing Co. et al., Defendants, Appellants. In Equity. Order Extending Time.

No. —. United States Circuit Court of Appeals, for the Ninth Circuit. Order Under Rule 16 Enlarging Time to Oct. 22, 1916, to File Record Thereof and to Docket Case. Filed Jul. 20, 1916. F. D. Monckton, Clerk.

*In the United States Circuit Court of Appeals, for
the Ninth Circuit.*

FRANK P. SNOW and FRANK S. LIVING-
STON, Doing Business as Partners Under
the Name of SNOW MANUFACTURING
COMPANY,

Appellants,

vs.

KELLAR-THOMASON COMPANY,

Appellees.

**Order Extending Time to December 31, 1916, to File
Record and Docket Cause.**

Good cause appearing therefor, it is hereby ordered that the time of appellant within which to file record and docket cause in the above-entitled court be, and the same hereby is extended to and including the 31st day of December, 1916.

TRIPPET,

Judge.

Dated October 18th, 1916.

[Endorsed]: No. —. United States Circuit Court of Appeals, for the Ninth Circuit. Frank P. Snow, and Frank S. Livingston, Doing Business as Partners Under the Name of Snow Manufacturing Company, Appellants, vs. Kellar-Thomason Com-

pany, Appellees. Order Extending Time to File Record and Docket Cause to Dec. 31, 1916.

No. 2893. United States Circuit Court of Appeals, for the Ninth Circuit. Two Orders Under Rule 16 Enlarging Time to Dec. 31, 1916, to File Record Thereof and to Docket Case. Refiled Dec. 14, 1916. F. D. Monckton, Clerk.

